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THE 1931 AGRICULTURAL OUTLOOK FOR CALIFORNIA*

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PREFACE

This report presents a summary of the present available facts bearing upon the future economic conditions of important farm products in California. If farmers are to avoid losses which result from extreme expansion or contraction, these facts should be given careful consideration when increasing or decreasing acreage of crops or numbers of livestock. The statements herein necessarily represent the state point of view, and in many instances, must be modified to meet local and individual conditions. No attempt is made to advise individual farmers as to what they should or should not do. This circular attempts to give the available facts and to analyze their probable bearing on future prices. It must be recognized, of course, that many conditions may arise that will nullify the most careful estimates. It is believed, however, that the presentation of the more important facts bearing upon the future economic conditions will be of benefit to farmers in adjusting their production to market demands.

Adjustment of acreage or of breeding plans alone cannot, of course, assure satisfactory profits. Reduction in costs, improvement in quality, and efficiency in marketing are all important considerations. Even in a time of declining prices, some farmers located on land particularly suited to one crop may make more money by growing that crop than by planting another which is on a rising price level but to which the land, climate, or market facilities are ill adapted. Farmers need to consider both the probable future prices as discussed in this circular, and the costs of production on their own farm, or at least in their own locality. Recent cost of production studies, made in cooperation with the farm advisors' offices in various counties, are presented in Agricultural Extension Circular 24. Readers of this circular are also referred to that publication.

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In the preparation of this outlook report information has been obtained from many sources. The Federal Outlook Report prepared by the Bureau of Agricultural Economics has been quoted extensively for those products grown throughout the United States. The California Cooperative Crop Reporting Service, the Federal-State Division of Markets, many cooperating marketing associations, and commercial companies have furnished much information.

DEMAND FOR AGRICULTURAL PRODUCTS

While many conflicting factors make it difficult to mark specifically the beginning of a definite recovery in business conditions in this country, it seems fairly certain that recovery will be in evidence during the latter half of 1931, continuing with greater momentum into 1932. With such developments, the demand for farm products during the crop season 1931-32 is likely to show a considerable improvement from the present unusually low levels.

The decline in domestic business activity which began in July, 1929, has developed into a major depression with many features characteristic of such depression periods. Industrial production, at the end of 1930, was approximately 35 per cent below the peak of 1929; factory employment was 22 per cent lower, and payrolls had been reduced about 35 per cent. In addition there has been a substantial reduction in building activity, particularly in residential construction. The decline in industrial activity has been practically continuous over a period of 18 months. Prices of industrial stocks reached their lowest levels in the present cycle in December, but have not as yet shown any signs of a general upward trend. Commodity prices likewise have declined until they are now at the lowest levels so far in this depression.

In appraising the probability of improvement in domestic demand for 1931 it is necessary to weigh certain factors which suggest recovery against those which might retard it. Those which point to a recovery paralleling the revivals from earlier depressions are:

1. The decline in commodity prices which has accompanied the decline in business has been of unusual proportions. Prices of raw materials have declined more than prices of finished goods, thereby creating a favorable spread for the resumption of manufactures, as in the case of cotton. Furthermore, there has been an appreciable reduction in retail prices, particularly for foods and clothing, which will tend to offset in part the reduced incomes of consumers.

2. Industrial activity has already declined more than in former major depressions and the period of decline (18 months, including December, 1930) has lasted approximately as long as other major depressions of this type. Prolonged low levels of industrial activity reduce the accumulation of surplus goods and create the need for replenishment. In the past this has been one of the features making for recovery.

3. Financial policy in the last year has been directed toward checking the business depression and laying the ground work for recovery. This policy has resulted in low interest rates, especially in the larger industrial sections, and has been favorable for expansion in public work and public utility construction, but it has not yet reflected itself in increased residential, commercial, and industrial construction.

There are, however, certain factors which suggest possible delay in the business revival. (1) Business in this country is being retarded by a continuation of the unfavorable business and unsettled political conditions abroad. (2) The material reduction in farm income likewise tends to make certain business men apprehensive as to the farm market for their products in 1931. (3) Just as the persistent great decline in prices of industrial stocks in 1929 affected business adversely in 1930, so the unusual decline in the last half of 1930 may affect business in 1931. (4) The rate of recovery from previous depression periods has been in part influenced by the necessity of supplying an accumulated deficit in capital goods. In 1921-22 and in 1924 recovery in business activity was stimulated by a material increase in building construction and in production of automobiles, and by a favorable increase in foreign trade, but a comparable stimulus to recovery in 1931 would have to come from other lines of activity, since there is little prospect of any marked improvement in these basic factors in the first half of 1931.

A balancing of these considerations does not indicate when the turning point in business is likely to occur. The lowest points of previous business depressions have been marked by low interest rates, low raw material prices, advances in stocks and bonds, and increased employment in key industries where curtailment had been too drastic. Advances in the first two events are clearly in evidence at present, and there are indications of increased employment in some basic industries such as automobiles, iron and steel, and the railroads. In recent weeks, also, bond prices have advanced and stock prices have shown some stability. These recent tendencies have been of such

short duration that it is uncertain if they mark an immediate turning point in the present depression. Even if this should be the turning point it is not likely that it will be followed by an immediate sharp advance, nor that there will be any marked improvement in the demand for farm products in the first half of 1931.

In our principal foreign markets there are few concrete and definite evidences of improvement in the purchasing power of consumers at the present time. The principal basis for expecting some improvement is the fact that the depression has continued so long and so far that the consumption of many industrial products is now outrunning production and, judging by the past, some recovery seems likely in the course of the next 12 months. Some evidences of approaching stability and even of improvement are beginning to appear, but against these appear other evidences of uncertainty and continued recession. Generally speaking, short-time money rates are comparatively low in several foreign countries, but lack of confidence is restricting the flow of money and credit into productive channels. Political instability still hampers several countries, while in others internal conditions apparently are becoming more nearly stable. Declines in the prices of some raw materials and foodstuffs appear to have been checked, temporarily at least. Checking declines in the prices of principal products of important countries, in itself, tends to remove causes of instability in governments, encourages the granting of credits where funds are needed, and promotes increased business activity.

APPLES

With almost 25 per cent of the apple trees in commercial orchards in the United States not yet of bearing age, or producing little fruit, and 60 per cent of the trees under 20 years of age, the average commercial production of the last few years apparently can be maintained for some years and might be easily increased. An increase seems the more probable in view of the more general adoption of improved production practices which have tended to increase yields in some important sections.

Of the bearing apple trees in commercial orchards, a large part are those that survived a long period of readjustment following overplanting 20 to 25 years ago. The net decrease in number of apple trees between 1910 and 1925, amounting to 79,000,000 trees or 37 per cent, had much to do with placing the industry on a sounder basis, since most of the orchards that survived were in the more favorable

sections. The large number of young trees now in orchards is the result of stimulated planting of certain varieties for a few years after the end of the World War. At the beginning of 1928, 25 to 30 per cent of the trees in commercial orchards were under 9 years old. Reports from the apple sections indicate that plantings since 1928 have been light and confined largely to replacements and to some new orchards where special advantages in production or marketing prevail. Sales of trees have varied little during the last 2 years and no general increase in sales of trees for the 1930-31 season is expected. Some tendency towards a decrease in the number of family orchards is apparent, although roadside markets are proving a stimulus to rejuvenation and better care of some small orchards. The quantity of apples produced in the small orchards of the country will continue to have considerable influence on apple prices, especially in seasons when growing conditions are good throughout the country.

Most of the increase in commercial production of apples in the United States is expected to occur in the barreled apple states. In these states about one-third of the trees in commercial orchards in 1928 were under 9 years of age. On the other hand, production in the Northwest is probably near its peak. The rate of increase in production has been very low during recent years as compared with 10 to 15 years ago. In 1928 only 13 per cent of the trees in commercial orchards in that section were under 9 years of age. Plantings since 1926 have been small.

In California the peak of production of Newtowns has apparently been reached. About 93 per cent of the total acreage of Newtowns in 1928 was in bearing while only 7 per cent was non-bearing. Furthermore, 24 per cent of the bearing acreage was over 31 years old. On the other hand a further increase in the production of Gravensteins is expected. In 1928, 16 per cent of the total acreage of Gravensteins was not in bearing while 21 per cent of the bearing acreage was not in full bearing and only 4 per cent was over 31 years old.

APRICOTS

The outlook for apricots does not justify additional plantings except in those localities where consistently large yields can be obtained at a relatively low cost.

The commercial production of apricots in the United States is virtually confined to California. During the past decade there has been a rapid expansion in production in this state, rising from an average of 152,000 tons in 1921-1923 to an average of 200,000 tons in

1928-1930, an increase of 48,000 tons, or 32 per cent. The available information indicates that the trend of production will continue upward for the next few years, but at a slower rate. In 1929 there were 93,100 acres of apricots in California, of which 82,300 acres were bearing and 10,800 acres nonbearing. About 20 per cent of bearing acreage in 1929, however, was not in full bearing.

Part of the apricot crop has a three-way outlet: it may be dried, canned, or shipped fresh. During the past five years an average of 63 per cent was dried, 30 per cent canned, and 7 per cent shipped fresh.

Dried Apricots.—The annual output of dried apricots has increased from an average of 13,800 tons in 1921-1922 to an average of 22,100 tons in 1928-1929, an increase of 8,300 tons. As a result prices have declined. Packers' quotations on Choice and Extra Choice grades averaged 22.5 cents a pound during the two years from 1921-22 to 1922-23, as against an average of 17.4 cents a pound during the two years from 1928-29 to 1929-30.

The future trend in the output of dried apricots may be expected to be upward in view of the prospective increase in total apricot production, but the increase will probably not be as large as in the past. Consequently, it is not likely that there will be as great a downward trend in prices as that which has occurred. Some downward trend, however, is in prospect. But it is not likely that the level of prices during the next few years will average as low as prices paid growers in 1930. The low prices in 1930 were in part the result of abundant supplies of dried apricots, and in part the result of decreased buying power of consumers both in this country and abroad.

Exports of dried apricots during the three months from July to September, 1930, amounted to 4,831 tons as against 4,573 tons during the same three months of 1929. Export prices, however, were only 12.4 cents a pound in 1930 as against 17.8 cents a pound in 1929. From July to September, 1928, exports amounted to 5,891 tons and export prices averaged 15.6 cents a pound. As compared with 1928, therefore, exports in 1930 were 18 per cent smaller and export prices were 20 per cent lower.

Canning Apricots.—The canning-apricot situation is closely related to the dried-apricot situation. When the price of canning apricots is high, growers send a large proportion of their crop to the canneries; when it is low they dry a larger proportion.

The pack of canned apricots in the state has increased from an average of 2,083,000 cases in 1921-1924 to an average of 2,862,000 cases in 1927-1930. This increase in the pack has been accompanied

by a downward trend in prices to growers. In 1921 the trend of prices was at \$72 a ton and in 1930 at \$60 a ton. The actual price in 1930 was much below the trend, chiefly because of the large carry-over at the beginning of the 1930 season and the low buying power of consumers due to the business depression and unemployment.

Although the pack of canned apricots in 1930 was small, amounting to only 1,954,000 cases, the carryover on June 1, 1930, was the largest on record, amounting to 1,306,000 cases. The supply available for shipment during the current season, therefore, amounts to 3,260,000 cases or over 300,000 cases more than the actual shipments in either 1928-29 or 1929-30. Because of the large supplies and the depressed market conditions, canners' opening prices on No. 2½ Choice advertised brands were only \$2.00 a dozen, the lowest price since 1916 and 53 cents a dozen below the average of 1925-1929.

The upward trend in the pack of canned apricots during the past decade would have resulted in a much greater decrease in the trend of prices to growers than that which has occurred, had it not been for a substantial increase in the demand for canned apricots. Between 1923 and 1926 the increase in the trend of demand was particularly rapid, rising at the rate of over 200,000 cases a year. Since 1926, however, the rate of increase has been much slower, amounting on the average to only 70,000 cases a year. While a further increase in the demand for canned apricots may be expected, there is no evidence that the future rate of increase will be any more rapid than it has been since 1926. Unless a larger proportion of the apricots are utilized for drying or fresh shipments during the next few years than the average of the past five years, it is probable that the trend of the pack of canned apricots will rise faster than the prospective increase in the trend of demand.

Fresh Apricots.—Although the interstate shipments of fresh apricots have increased gradually, they now afford an outlet for only a small proportion of the crop. The chief limiting factor in shipping fresh apricots to eastern markets is the extreme perishability of the fruit. The necessity for handling them quickly makes it desirable to sell them in the few large auction markets rather than in the many private-sale markets. Consequently, the distribution of fresh apricots has been limited. The widening of the markets depend mainly upon improvement in harvesting, packing, and refrigeration methods. Even if it were possible, however, to find profitable markets for double the present interstate shipments, they would provide an outlet for only a part of the prospective increase in production.

CHERRIES

Unless the domestic markets for maraschino and glacé cherries can be greatly expanded, it does not appear that large additional plantings of Royal Ann cherries are justified. Nor, in view of the large increase in production already in prospect, does it appear that the acreage of cherries for fresh shipments can be profitably expanded, except in particularly favorable localities.

From 1921 to 1926 there was a gradual increase in the bearing acreage of cherries in California, amounting on the average to almost 400 acres a year. From 1926 to 1929 the increase was much more rapid, amounting to about 800 acres a year. Indications are that this rapid increase will be maintained during the next few years. In 1929 there were 13,260 bearing acres in the state and 5,647 nonbearing acres. The California Crop Reporting Service estimates that by 1932 the bearing acreage will amount to 16,300 acres, an increase of 23 per cent over the bearing acreage in 1929.

The production of cherries, however, has not kept pace with the increase in bearing acreage. Conditions have been unfavorable to high yields in the past few years. The average yield per acre for the state as a whole was only 1.33 tons during the past seven years, whereas the average yield during the five years from 1919 to 1923 amounted to 1.63 tons. The available information indicates that at least a part of the decline in yield may be a temporary condition. Similar periods of low yields followed by periods of higher yields have occurred at two other times during the past twenty-five years. With yields per acre equal to the average of the past six years, the trend of production in 1932 may be expected to be about 21,000 tons. But if yields should average as high as they did between 1919 and 1923, the trend of production in 1932 may reach 26,000 tons. The average annual production during the past three years amounted to 18,000 tons.

Fresh Cherries.—Although many of the other western states produce large quantities of sweet cherries for fresh consumption, they do not come on the market until the California season is nearly completed. Consequently, they do not compete to any serious extent with fruit from this state.

The trend of interstate shipment of fresh cherries from this state has been upward, rising from 570 cars in 1921 to 750 cars in 1930, an annual average increase of 20 cars a year. This upward trend may be

expected to continue, since about 65 per cent of the present nonbearing acreage of cherries in the state is planted to black varieties which are shipped fresh.

Thus far the demand for California fresh cherries has kept pace with the upward trend in prices. Whether the demand for cherries will continue to increase cannot be definitely determined from the data now available. However, there is as yet no evidence that it has been checked. But even with a further increase in demand it does not appear that the level of prices will rise above the average of recent years if the prospective increase in shipments materializes. And if conditions are particularly favorable to large yields, there may even be some decline in the trend of prices.

Canned Cherries.—The Royal Ann cherry is the principal variety used for canning, and a considerable part of the Royal Ann crop is so used. As contrasted with fresh cherries, California canned cherries come in direct competition with those packed in Oregon, Washington, Idaho, and Utah. Some of the states east of the Rocky Mountains also produce large quantities of canning cherries, but their cherries are the sour varieties. Consequently they do not compete seriously with the sweet cherries. Although there has been a downward trend in the canned pack in this state since 1919, there has been a pronounced upward trend in Oregon and Washington. The increase in those two states has more than offset the decline in California. The total pack of canned cherries of the Pacific Coast has increased about 18 per cent in the past nine years. The increase in the pack of canned cherries, however, has been small as compared with the increase in most of the canned fruits.

The demand for canned cherries has just about kept pace with the relatively small increase in the pack. Consequently, there has been no pronounced downward trend in prices paid growers.

Unofficial estimates indicate that there are about 2,500 acres of non-bearing Royal Ann trees in the three Pacific Coast states. When this acreage comes into bearing production will be increased. While canning may be expected to provide an outlet for a gradual increase in the supply of Royal Anns, it does not appear that a very large increase in the canned pack can be sold except at lower prices.

Maraschino Cherries.—In recent years the manufacture of maraschino and glacé cherries has provided an annual outlet for more than 5,000,000 pounds of sulfured and brined Royal Ann cherries that were produced on the Pacific Coast. This amount, however, has constituted only a part of the sulfured and brined cherries which

the United States annually uses in the manufacture of maraschino and glacé cherries. During the past six years the total imports of cherries, most of which were sulfured and brined cherries that had been stemmed and pitted, amounted to an average of 17,140,000 pounds a year. In 1929-30 imports were unusually large, amounting to 23,263,000 pounds.

GRAPES

With favorable weather conditions the bearing acreage of grapes in California is still great enough to produce crops so large as to cause difficult marketing conditions and a continuation of very low prices for several years unless further substantial reduction in the acreage of all classes of California grapes takes place very soon. Reduction will be necessary even with the most careful regulation of marketing.

Normally low prices are to be expected not only because of heavy supplies and the low general price level, but also because of indications of reduced demand for both fresh juice grapes and raisins. California raisins are no longer being extensively advertised and price competition from foreign raisins in export markets has become very severe since 1928.

The peak in the bearing acreage of all classes of California grapes, even of juice grapes, has been reached. However, the reduction in acreage that have taken place recently have not been sufficient to eliminate the probability of large surpluses in years of favorable weather conditions and normal yields. Unfavorable weather conditions reduced California yields per acre about 20 per cent in 1929, resulting in a crop of 1,872,000 tons. With approximately average yields in 1930, however, the total crop rose to 2,091,000 tons. In spite of the fact that about 124,000 tons (preliminary estimate) of table and juice grapes were unharvested and that the Grape Control Board purchased and left on the vines 314,000 tons of fresh raisin grapes, fresh shipments were so large that, under the unfavorable demand conditions, average returns to growers per ton for fresh grapes were the lowest since the War. Fresh raisin grapes were the only class of grapes that did not average lower than the previous low level of 1928 prices. The 1930 dried raisin tonnage of 168,000, the smallest output since 1921, is being offered at prices equivalent to somewhat less than 3 cents a pound to growers.

Largely because 438,000 tons (preliminary estimate) of California grapes were left unharvested in 1930, shipments of fresh grapes from

the state were held to about 60,900 carloads, or approximately 780,000 tons, as compared with 56,250 carloads in 1929 and an average of 65,800 cars for the years 1927-1929.

Raisins.—The latest revised estimates by the California Crop Reporting Service of bearing raisin grapes indicate approximately 245,000 acres in the state in 1930. As a result of low prices for raisins, acreage has been steadily declining for several years. Further substantial reduction, however, is necessary to eliminate undesirable surpluses in years favorable to yields average or above.

Raisin-grape production in California approximately doubled from 1919 to 1928, reaching an average of over 1,400,000 tons in 1927 and 1928. Abnormally low yields reduced the crop to slightly less than 1,100,000 tons in 1929, but with approximately normal yields, the 1930 crop rose to 1,222,000 tons, indicating about the normal tonnage to expect from the present acreage. Of the 1930 crop, 672,000 tons were utilized for drying, about 214,000 tons shipped fresh by rail to consumers in California and other states, 22,000 tons crushed in commercial plants (unofficial estimate by the Grape Control Board), and the balance of 314,000 tons left unharvested on the vines after purchase by the Control Board.

The dried output of California raisins rose from an average of about 180,000 tons ten years ago to a peak of 300,000 tons in 1927, averaging 285,000 for the three years 1926-1928. The tonnage dried in 1929 amounted to 215,000 and in 1930 to only 168,000 tons. However, 250,000 tons of raisins could have been dried if the Control Board had not purchased and left a large tonnage unharvested on the vines.

The big increase in California raisin production since the War was accompanied until 1929 by a rapid and steady growth in the tonnage actually sold for foreign and domestic consumption as raisins (exclusive of by-products). Consumption, however, failed to increase as rapidly as production in spite of drastic price declines. The total rose from about 155,000 tons, sweat-box basis, in the crop year 1921 to 290,000 tons in 1928, the peak year of sales, declining to 215,000 tons in 1929. However, 290,000 tons of raisins were dried in California from the abnormally heavy crop of 1923, and by 1928, California's normal production was large enough so that an average of 285,000 tons a year were dried from three consecutive crops—1926, 1927, and 1928. In no year since 1922 has the state carryover of raisins on September 1 been less than 59,000 tons and as late as 1928 it amounted to 124,000 tons. It still stood at 92,000 tons on Septem-

ber 1, 1930, raising the available supplies for the 1930 marketing season to 260,000 tons, even with the restricted tonnage dried. In the fall of 1929, 307,000 tons were available. Sales for the crop year of 1929 amounted to 215,000 tons. Shipments from September 1, 1930, to January 1, 1931, have been approximately the same as during the corresponding quarter of the 1929 marketing season.

In recent years California raisins have met severe competition from foreign raisins in overseas markets. Production of raisins in Australia, Smyrna, Spain, Greece, and Crete, which averaged only about 85,000 tons during 1921-1923, amounted to 145,000 tons during 1927-1929. Preliminary estimates for 1930 are about 120,000 tons. Foreign production of currants has also been increasing. The currant output of Greece and Australia increased from an average of 131,000 tons in 1921-1923 to 161,000 tons for 1927-1929, with estimates of about 182,000 tons for 1930. Normal crops of foreign raisins and currants will probably continue to be about as large as in recent years. However, low prices have discouraged new plantings.

For several years previous to 1929 foreign prices, particularly these for Australian raisins, were several cents a pound higher than California raisins in export markets, enabling California to treble exports in less than ten years. Overseas shipments of 96,000 tons, sweat-box basis, in the peak year 1928 constituted one-third of total California sales during that crop year. Since the summer of 1929, however, foreign-produced raisins have been selling about as low as California exports and largely as a result, California overseas exports have declined greatly. Only 47,000 tons (sweat-box basis), or 22 per cent of California raisin sales, were exported to overseas markets during the crop year 1929. Since foreign supply and price competition are likely to be keen for several years, California will probably find future export sales much smaller than in 1927 and 1928.

As a result of large world crops of raisins and currants, California raisin prices have been at a relatively low level since 1922. In no year since 1922 have growers received an average of as much as 4 cents a pound. In five of the past nine years they have received 3 cents a pound or less, and the average for the last seven years is only about 3 cents. The Raisin Pool to date has advanced 2.5 cents a pound to growers on deliveries from the 1930 crop.

Purchase on the vine not only greatly reduced the tonnage of raisins that might otherwise have been dried in 1930 but also resulted in the lightest movement of fresh Muscats from the state since 1922. The interstate movement of 8,200 carloads was slightly less than in

1929 and much less than the 1927-1929 average of over 12,000 cars. Light shipments were the chief reason why fresh Muscat prices were almost as good as in 1929.

Juice Grapes.—Previous to 1927 black wine-grape varieties commanded considerably higher prices than table grapes in eastern markets. During the past three seasons, however, table grapes have averaged more than black-juice grapes. There is some evidence that the demand for juice grapes has fallen off in the last three years. Moreover, acreage and production of wine-grape varieties are so large that they may normally continue to sell at low prices for several years. In 1921, black juice varieties averaged \$2.40 a lug in eastern auction markets. During the 1930 season they brought only \$1.07, the lowest average for any class of grapes. Production of Alicante Bouschet, which brought \$2.96 a lug in 1921 (40 cents more than any other variety), has increased so greatly since then that the variety averaged only \$1.11 a lug the past season.

Preliminary estimates indicate that California produced about 451,000 tons of wine-grape varieties in 1930. Although the Control Board bought and withheld none of this class of grapes from the market, conditions were such that a considerable tonnage was unharvested. Prices would probably have been even lower if Muscat shipments had not been so drastically curtailed.

The latest estimates show nearly 162,000 bearing acres of wine grapes in the state in 1930. Only a slight decline in acreage has taken place in the last year or two and even this decrease has probably been offset by the increasing productivity of young vines. Unfortunately, further reduction in wine-grape acreage will come about slowly during the next few years, as many growers are not convinced of the fact that with average yields present acreage will probably produce surpluses large enough to hold prices at low average levels.

Table Grapes.—Table grapes returned growers less per ton in 1930 than in any previous year, judging by eastern delivered-auction prices, which averaged \$1.11 a package for Malagas and Tokays, the two chief varieties of mid-season table varieties. These varieties declined from \$2.25 a crate in 1921 to \$1.37 in 1925, and have averaged about that low or lower in four of the last six years. Higher prices in 1929 were made possible only because production and shipments were drastically curtailed by unfavorable weather conditions.

Interstate shipments of table stock (including Thompson Seedless) amounted to 22,520 carloads in 1930, as compared with 20,300 in 1929 and an average of 24,200 for the years 1927-1929. Shipments of

Malaga table stock have been declining for several years; 4,190 carloads were shipped out in 1930, as compared with 4,680 in 1929 and an average of 6,310 carloads for the period 1927-1929. Malaga juice-stock shipments, however, were heavier than in 1929, amounting to 2,480 carloads, as compared with 2,010 in 1929 and an average of 1,725 for the years 1927-1929. Tokay interstate shipments of 7,670 carloads were substantially greater than in recent years and hence sold at very low prices. Only 5,610 cars moved in 1929 and an average of 6,670 in the years 1927-1929.

During the last three years Thompson Seedless has gained considerable favor as a table grape. Eastern delivered-auction prices averaged \$1.27 a package in 1930, the highest price for any variety, and only 3 cents below the average of the preceding three years. Interstate shipments as table stock were 4,710 carloads, or very close to the average of the previous three years. Only 200 cars of this variety were shipped as juice stock.

The revised estimates of the acreage of table grapes in 1930 show 112,000 bearing acres in the state. Although the acreage has been declining for several years, still further reduction is necessary to eliminate the surplus that has depressed prices so seriously in recent years.

PEACHES

Clingstone.—Unless many trees are removed or the orchards are much neglected, the production of clingstone peaches in California during the next five or six years will probably be considerably in excess of the supply that can be sold at prices profitable to the majority of the growers.

Estimates based upon the available data on acreage by age of trees and average yields per acre indicate that the trend of the supply of No. 1 fruit available for canning in 1931 will be around 18,000,000 cases; in 1932, 18,210,000 cases and in 1933, 18,260,000 cases. Thereafter there may be a downward trend, but the decline is not likely to be sufficiently rapid under normal conditions to reduce the supply to 15,000,000 cases until about 1938. This estimated trend is based upon the assumptions that all trees will be removed when they reach the age of twenty-one years, that no trees younger than twenty years will be taken out, that no additional acreage will be planted, and that 83 per cent of the total crop will be No. 1 fruit. It is probable, of course, that under a period of very low prices considerable acreage will be removed before it reaches the age of twenty years and

that the yields on many orchards will be reduced as the result of neglect. These conditions would tend to lower the estimated trend of the supply available for canning but would probably not reduce it to a point where growers would receive profitable prices during the next two or three years.

The largest quantity of canned peaches ever consumed in any one year was 13,608,000 cases and that was in 1927-28 when the price received by canners was \$3.04 a case, the lowest in any year between 1921-22 and 1929-30, and the volume of competing fruit production was 14 per cent below normal. At a price of \$3.10 a case and under normal conditions it is estimated that in 1927-28 canners could have sold only 13,200,000 cases. Since 1927-28 the trend of demand for canned peaches has been increasing at the rate of 200,000 cases a year, so that if conditions this season had been normal it is probable that canners could have sold 13,800,000 cases at a price of \$3.10 a case. Because of the depressed business conditions and unemployment now existing, however, it is probable that canners will actually sell a smaller quantity than 13,800,000 cases at a price lower than \$3.10 a case.

Between 1921-22 and 1927-28 the trend of demand for canned peaches increased at a much faster rate than it has in the past three years. In 1921-22 if conditions had been normal and the price had been \$3.10 a case, it is probable that canners could have sold 10,250,000 cases, and in 1927-28 under normal conditions 13,200,000 cases, an increase of 2,950,000 cases in six years, or an average annual increase of almost 500,000 cases a year. The trend of the supply of canned peaches, however, increased at a much faster rate, rising from 6,600,000 cases in 1921-22 to 13,200,000 cases in 1927-28. Thus in 1927-28 the trend of supply caught up with the trend of demand at \$3.10 a case and since then has been above it.

It is, of course, very difficult to estimate the future trend of demand for canned peaches. A reasonable estimate may be arrived at based upon the data available. Judging from the data at hand it appears that an increase in the trend of demand for canned peaches during the next few years equivalent to about 200,000 cases a year is about all that can reasonably be expected. It will probably take an increase of about 140,000 cases a year to maintain the present per-capita demand in this country. This leaves an increase of 60,000 cases a year to provide for increased per-capita demand in this country and for increased exports. It has already been mentioned that the increase in the trend of demand since 1927-28 has been at a rate of only 200,000 cases a year.

While it is impossible to determine how long it will be before the trend of supply of clingstone peaches will be reduced enough, or the trend of demand will have increased enough, to enable all of the No. 1 fruit to be sold at prices reasonably profitable to growers, there is no evidence that such a condition will occur within the next two or three years.

Freestone.—Prices paid growers for dried peaches in 1930 averaged about 5.5 cents a pound as against an average of 9.8 cents a pound during the past five years. The low prices in 1930 were partly the result of depressed business conditions both in this country and abroad, and partly the result of an unusually large output of dried peaches. There is no reason for expecting, however, that prices during the coming years will average as low as in 1930.

During the past decade there has been a downward trend in the production of freestone peaches in this state, falling from an average of 227,000 tons in 1920–1922 to an average of 185,000 tons in 1928–1930, a decrease of 18.5 per cent. All of this decline has been in canning peaches. During the three years 1920–1922 an average of 35,000 tons of freestones were canned, while during the three years 1928–1930 an average of only 6,800 tons were canned. The output of dried peaches and the interstate shipments of fresh peaches have remained at approximately the same levels. If the downward trend in total production continues, the output of either dried or fresh peaches or both will tend downward.

The available data on the acreage of freestones in California indicate that a further decline in production is in prospect during the next few years. Of the 67,400 acres of freestones in this state in 1929, 60,400 acres, or 90 per cent, were in bearing and only 6,700 acres, or 10 per cent, were nonbearing. Furthermore, 71 per cent of the present bearing acreage is eleven years of age and older. Since the average commercial life of a peach tree in California is only twenty or twenty-one years, it is evident that a considerable decrease in bearing acreage due to old age may be expected. Nor is the number of young trees now planted sufficient to replace the loss that will normally occur in the old trees.

A considerable part of this prospective decline is likely to be in the principal drying-peach varieties. The total acreage of Muirs and Lovells in 1929 amounted to 35,800 acres, of which 94 per cent were bearing and only 6 per cent nonbearing. Furthermore, 75 per cent of the bearing acres were eleven years of age and older.

The peak of production of fresh peaches in the United States has probably been passed and the available data point toward a downward

trend in production during the next few years. In the five states of Georgia, North Carolina, South Carolina, Tennessee, and Arkansas commercial plantings in recent years have not been sufficient to maintain the present bearing average.

The average commercial life of a peach tree in the southern states is only thirteen to fifteen years. In 1929 about 18 per cent of the trees in commercial orchards in the five states mentioned above were under five years old and 65 per cent were from five to nine years old. This latter group of trees are now from seven to eleven years old. During the next few years some of these trees will normally be removed and many others will be declining in productivity. Although production in the southern states greater than the light crops of 1929 and 1930 may be expected under favorable seasonal conditions, the potential bearing capacity is now below that of 1928 and a further downward trend in bearing capacity is probable during the next few years.

As a result of the prospective downward trend in production in the southern states, California fresh peaches will probably meet less competition in the midwestern and eastern markets than they have experienced on the average during recent years.

PEARS

So few pear trees have been lost as a result of the 1930 California blight epidemic that further increases in production on the Pacific Coast are still to be expected with unprofitable prices to many growers, unless further severe blight epidemics occur or black-end takes heavy toll from the industry. Adoption of orchard practices to reduce excessive production of low grade, small size pears, together with marketing regulations to eliminate such inferior pears from all market channels—fresh, canned or dried—are measures needed to help reduce the future unprofitable surpluses in prospect.

Blight was serious in the lower Sacramento River and delta section, but those best informed estimate that the 1930 epidemic will probably reduce the bearing acreage for the state as a whole only between 3 and 4 per cent. Upon the basis of county estimates by those engaged in blight control, Mr. D. G. Milbrath, plant pathologist in the State Department of Agriculture, conservatively estimates that the pear crop for the state as a whole was reduced between 12 and 15 per cent in 1930 due to losses from blight. As a result of both total loss of some trees and set-back to others, the reduction in 1931 pro-

duction due to the 1930 blight epidemic will probably be at least 5 per cent of the average yields per acre for the state as a whole. The most serious loss from the blight epidemic, however, is not the loss in production and trees but the heavy costs involved in blight control, which have been estimated at over \$800,000 in 1930 for the state as a whole. Some growers spent as much as \$70 an acre for blight control in 1930. Great care must be exercised if additional losses and heavy expenses are to be avoided from reinfestation in 1931 from holdover blight.

After reducing the California Crop Reporting Service's estimates of the 1930 pear acreage for the loss of trees resulting from the recent blight epidemic, they still indicate that California production will probably continue to increase for several years. The outlook in Oregon and Washington is similar. In the rest of the United States, representing about one-third of the national pear output and consisting largely of late varieties, acreage and production as a whole are not increasing.

Aside from the blight, other factors affecting yields per acre were favorable in 1930 and, as a result, 227,000 tons were produced in the state, as compared with 190,000 tons harvested from the short crop of 1929; and an average of 200,000 tons for the three years 1927-1929 and of only 101,000 tons ten years ago (1919-1921). United States production was also larger in 1930, amounting to 615,000 tons, as compared with 530,000 in 1929. California tonnage was 37 per cent of the national total in 1930 while Oregon and Washington together produced 30 per cent of the total, or 185,000 tons, as compared with 147,000 tons in 1929. The Pacific Northwest is the only large area of importance other than California that has greatly increased its output of pears since the war. Average production of Washington and Oregon in the period 1927-1929 of 129,000 tons is more than double the average of 56,000 produced ten years ago (1919-1921).

Of the 94,000 acres of pears in California in 1929, about 26 per cent were not yet bearing, 64 per cent were in partial bearing and 36 per cent in full bearing. Trees lost by the blight were practically all Barletts, the majority of them the younger bearing trees from about seven to fifteen years of age. With prospects for still further increases in the bearing acreage of trees on the Pacific Coast, unless black end and blight take unusually heavy toll, production promises to be even larger under favorable weather conditions than the large crop of 1930, which brought growers such unsatisfactory returns.

Bartletts now constitute at least three-fourths of Pacific Coast production. In California this one variety contributes 88 or 89 per cent of the crop; in the Pacific Northwest, about 55 per cent. The proportion of Bartletts, however, will probably decline somewhat in the next few years as a smaller percentage of Bartlett trees are coming into bearing each year than of other varieties. In California only 46 per cent of the Bartletts were less than nine years old in 1929, compared with 72 per cent of trees of other varieties.

In recent years about 53 per cent of the California pear crop has been shipped for fresh consumption, about 34 per cent has been canned and 13 per cent dried. About two-thirds of California interstate shipments are Bartletts and all of the commercial tonnage utilized for canning and drying. Practically no Bartletts are dried elsewhere in the United States. Commercial canning of this variety is usually confined to the Pacific Coast, which also supplies the majority of the fresh Bartletts consumed in the United States.

The great bulk of fresh California Bartletts reaches eastern markets by the first of September and is sold before supplies from Oregon Washington or other states become large. They are, however, affected by competition from summer fruits, especially from shipments of peaches, which in recent years have normally been very heavy. Annual shipments of pears from California before the middle of September, which are a good index of our fresh Bartlett shipments, more than doubled in the last ten years. Demand for them, however, has increased substantially, and consequently, as the trend of California fresh Bartlett prices in eastern markets has not declined nearly as rapidly since 1921 as shipments have increased. The trend of such shipments rose from about 4,400 carloads in 1921 to approximately 9,700, or practically the same as actual shipments in 1930, representing an increase of approximately 120 per cent. During the same period the trend of New York delivered-auction prices of California Bartletts decreased only about 10 per cent. Considering the low level of all-commodity wholesale prices in 1930, the average New York auction price of \$2.37 a box in 1930 is close to the trend.

The prospective increases in the production of California Bartletts indicates that the upward trend in fresh shipments will continue. Further increase in demand may also be expected, but unless it increases faster than it has in the past, the downward trend in prices that has prevailed since 1921 is likely to continue during the next few years.

The Bartlett canning industry on the Pacific Coast has grown so rapidly that the average pack of slightly over 4 million cases during

the last three years has amounted to three times the average ten years ago (1919-1921). The output in Oregon and Washington has increased even faster than in California. In 1919 only about 25 per cent of the pack originated in the Northwest, compared with nearly 55 per cent during the last two years. In equivalent cases of 24 number 2½ cans, California packed 1,871,000 in 1930; Oregon and Washington a total of approximately 2,240,000 cases. About 108,000 tons of fruit were utilized in packing this total of 4,111,000 cases of Bartletts or roughly, one-third of the Pacific Coast crop of Bartletts, or about one-fourth of California Bartletts, and probably 60 per cent of those in the Northwest.

Prices for the 1929 output of canning and canned pears were so high that 1,069,000 cases were still unsold by Pacific Coast canners on June 1, 1930. With such a carryover and with a large crop of Bartletts, as well as of other canning fruits in 1930, prices for canning pears in 1930 were the lowest since the war, averaging about \$30 a ton to growers. With prospects for increased production of Bartletts on the Pacific Coast and large canned packs it seems probable that canning prices will on the average be low for several years unless an unexpectedly large increase in demand is quickly brought about.

During the three years 1927-1929 an average of about 22,000 tons, or 11 per cent of the California pear crop was estimated as fall and winter varieties. The tonnage produced in 1930 was probably considerably larger, as blight scarcely touched these varieties and more trees are coming into heavier bearing each year. Unlike our Bartletts, the great bulk of these pears is shipped after the middle of September, competing with eastern pears and with the rapidly increasing production of late pears from Oregon and Washington. Rail shipments of Pacific Coast pears after the middle of September are now more than three times as great as ten years ago. The percentage of trees still to come into bearing is larger than for Bartletts, indicating that the production of winter pears may increase even more rapidly than Bartletts during the next few years. Although the proportion of young trees in the Northwest is considerably less than in California, there is sufficient young acreage to indicate further rapid increases in winter pear production in that section as well as in California.

Prices of the 1930 crop of late pears have been extremely unsatisfactory, averaging about a dollar a box less than in 1929. As a result many growers have received "red ink" from shipments to the east. The rapid increase in production has caused prices to decline greatly

since 1921. Prices of Bose and Comice particularly have declined much more rapidly than of Bartletts. The premium in their favor has shrunk so greatly that growers' returns for them per box are now little, if any, better than for Bartletts. The large prospective increase in late pear production on the Coast indicates that prices will probably average very low for several years, unless unexpected changes occur in production and marketing. Considering the unfavorable price outlook and the peculiar difficulties of producing good yields of some varieties of late pears, caution suggests few, if any, new plantings.

PLUMS

Judging from the available facts, it does not appear that the trend of plum prices is likely to fall materially during the next few years, but neither is there likely to be any pronounced upward trend in prices. About all that can reasonably be expected is that the level of prices prevailing since 1921 will be maintained.

During the past decade there has been a rapid expansion in the bearing acreage and production of plums in California. Between 1919 and 1929 the bearing acreage doubled. According to the forecasts of the California Cooperative Crop Reporting Service the upward trend in bearing acreage will continue, but at a lower rate. By 1932 it is expected that there will be about 35,900 acres in bearing, an increase of 1,700 acres over the bearing acreage of 1929. This prospective increase is smaller than that which has occurred. During the three years 1926-1929 there was an increase of over 4,000 acres, while during the previous three-year period, 1924-1926, there was an increase of over 6,000 acres.

Based upon the forecast of bearing acreage, it appears that the trend of production in 1932 will be around 72,000 tons, assuming that yields during the coming years equal the average of recent years. Production in 1930 amounted to 79,000 tons, which is larger than the average crops to be expected during the next two or three years.

Although plums are produced in other sections of the United States, particularly in the Pacific Northwest, they do not compete seriously with California fresh plums, the bulk of which are shipped during the three months of May, June, and July. During this period there are practically no shipments from other states. By the time their shipments become heavy California plums are practically out of the markets.

Although the interstate shipments of fresh plums from California have fluctuated widely from year to year, there has been a gradual upward trend, rising from an average of 3,065 cars in 1920-1922 to an average of 4,500 cars in 1926-1928. This upward trend in shipments, however, did not result in a downward trend in prices. During the past ten years there has been no definite upward or downward trend in the prices of California plums in the eastern markets. This is evidence that the demand for plums from this state has increased. Consumers are buying a larger quantity now and are paying as much per pound for them on the average as before.

Interstate shipments of plums in 1930 amounted to 5,890 cars, the largest on record. In 1923 and 1926, the other years in which the plum crop was very large, interstate shipments amounted to 5,247 and 5,221 cars, respectively. Although prices of California plums at New York in 1930 averaged only \$1.51 a crate as against an average of \$1.80 a crate during the past nine years, they were higher than in either 1923 or 1926.

A small quantity of California plums is canned each year, amounting on the average to around 5 per cent of the crop. There has been no apparent tendency during recent years for the California canned pack to increase, although there has been a material increase in the canned pack of plums and prunes in the Pacific Northwest. With the steadily increasing supply of other canned fruits it does not appear that canning will offer an outlet for any substantial increase in the production of plums except at lower prices.

PRUNES

Reduction in the general level of all prices and in the purchasing power of the consuming public, together with the large world prune crop, resulted in the lowest prices in 1930 that California prune growers have received since before the War. Prospects for a continuation of heavy normal crops indicate that the average price for the next few years may be low, although not as low as in 1930, unless exceedingly adverse general economic conditions continue.

In recent years the Pacific Coast states have produced 85 to 90 per cent of the commercial dried-prune output of the world, and they are likely to continue to do so. Prospects are that the bearing acreage on the Coast will remain about stationary for several years and hence world production may be expected to be as large or perhaps slightly larger than the 1930 crop in years favorable to average yields or better.

Favorable weather resulted in California yields per acre in 1930 nearly as large as those in 1927 and 1928 and more than double the average for the short crop of 1929. The result was a state crop of 225,000 tons, about the same in size as the record crops of 1927 and 1928 and over twice the average of ten years ago. Production in the Pacific Northwest, France, and Jugoslavia were sufficient to bring the preliminary estimate of world commercial output to about 280,000 tons, or approximately 100,000 tons greater than in 1929 and nearly the same as the average for 1927 and 1928.

Oregon and Washington are estimated to have dried about 25,000 tons of prunes in 1930, as compared with the bumper crop of 56,000 tons in 1929, and 6,000 tons from the 1928 crop, which was almost a complete failure. Present bearing acreage is likely to remain stationary for a few years and hence production may continue to average about as large as the 30,000 ton average of the last five years, or possibly a little larger. However, weather conditions vary so much that the output is likely to fluctuate greatly from year to year, as in the past.

The information available indicates that the prune output of France is not likely to average any larger during the coming years than it has since the War. It has averaged about 10,000 tons during the last ten years. However, it fluctuates widely from year to year. In 1927 over 20,000 tons were harvested, as compared with 2,300 tons the following year, 4,100 in 1929, and about 18,000 tons in 1930.

Exports of dried prunes from Jugoslavia amounted to only about 12,000 tons in 1929, and preliminary estimates indicate that less than 8,000 tons will be exported from the 1930 crop. According to Mr. M. J. Newhouse, who made a survey of the industry in 1929, the exportable surplus will probably continue to be considerably less than the 50,000 ton average immediately after the War, although it cannot be expected to remain at the very low level of the last two years.

Partly owing to the very short California crop, United States exports declined to only 71,000 tons during the 1929 crop year, or about 45 per cent of the United States production, compared with 134,700 tons or 60 per cent of the 1928 crop. During the three years previous to 1928, exports averaged 92,000 tons or 50 per cent of production. Since France and Jugoslavia may continue to produce small crops, export markets will probably continue to take a large part of Pacific Coast prunes during the next few years.

ORANGES

Navels.—The available facts point to an upward trend in the shipments of both oranges and grapefruit at the time California Navels are marketed. Although it is probable that the peak of production of Navels in this state has been reached, Florida, Texas, and Arizona are capable of producing materially larger crops of citrus fruits than they have yet produced, whenever conditions are favorable to high yields.

The total acreage of Navel oranges in California in 1929 amounted to 100,500 acres, of which 97 per cent were bearing and 3 per cent nonbearing. Most of the bearing acreage is now in full bearing. Consequently, it is probable that the future production of Navel oranges in this state will not be materially above the level of recent years. The total acreage of oranges in Florida, including tangerines and satsumas, is now close to 230,000 acres. While most of this acreage is now in bearing, many trees have not yet reached the age of full bearing. In 1928 about 23 per cent of the total number of orange trees in Florida were classified as nonbearing. Texas, with a total of 20,600 acres of oranges, has only about 24 per cent in bearing, while only about 50 per cent of the 3,400 acres of oranges in Arizona are in bearing.

In addition to increased shipments of winter oranges, the large prospective increase in shipments of winter grapefruit will probably add further to the competition of California Navels (see page 28).

From 1921-22 to 1927-28 there was a substantial increase in the trend of demand for winter oranges. Since 1927-28, however, there has been no further increase. Indications are that the peak of per-capita demand for winter oranges in this country has about been reached. If such proves to be the case, it is evident that the prospective increase in production of winter oranges cannot be sold in this country except at prices somewhat lower than the average of the past six years.

Export markets are not likely to offer a large additional outlet for winter oranges. The principal foreign orange-producing countries, Spain, Italy, and Palestine, ship their fruit at the time California Navels are on the market. The tendency is toward increasing production in those countries.

Valencias.—Large additional plantings of Valencia oranges at this time are likely to result in materially lower prices when they come into

bearing. The prospective increase in production from the acreage already planted is likely to be ample to provide for the probable increase in demand that is expected to develop during the next few years.

During the past decade there has been a marked upward trend in the shipments of Valencias, rising from 7,000,000 boxes in 1921 to 13,000,000 boxes in 1930. The actual shipments in 1930 were small, being 22 per cent below the trend. Indications are that the upward trend in shipments will continue. In 1929 there were 112,250 acres of Valencias in the state, of which 20,890 acres, or 19 per cent, were nonbearing, and an even larger proportion was not in full bearing. As the trees come into full bearing production will be materially increased.

Thus far the demand for Valencias has on the average increased even faster than shipments, and consequently there has been an upward trend in prices. While a further increase in the trend of demand may be expected, it is not likely to be as rapid as in the past. In fact, there has been a definite tendency for the trend of demand to flatten off during the past two years. Between 1922 and 1928 the average increase in the trend of demand was equivalent to 1,100,000 boxes a year, whereas during the past two years the average increase has been at the rate of only 550,000 boxes a year. There is no evidence that the trend of demand during the next few years will increase any faster than it has during the past two years, and it may not increase as fast.

Even if the increase in trend of demand during the next few years should average 550,000 boxes a year, it would hardly be sufficient to offset the prospective increase in shipments, which judging from the available data on acreage may be expected to rise at the rate of 650,000 boxes a year. Consequently, it is probable that the future trend of prices, instead of continuing upward, will decline. The decline during the next four or five years, however, is not likely to be great enough to result in generally unprofitable returns to growers. The chief danger in the situation is that the high level of prices now prevailing will induce growers to plant an excessively large acreage. When the trees planted in 1931 come into bearing, it is very likely that the demand for Valencia oranges will not be increasing as fast as at present and at that time a considerable number of the trees already planted will not have reached the age of full bearing.

GRAPEFRUIT

The available facts indicate that California grapefruit growers are likely to experience much greater competition during the winter and spring months in the coming year than they have in recent years. Growers of summer grapefruit are in a more favorable position.

The bulk of the grapefruit from Florida, Texas, Arizona, Imperial Valley, and central California is shipped during the eight months of October to May inclusive.

Most of the increase in the bearing acreage of grapefruit in California during recent years has occurred in the Imperial Valley. In 1925 there were only 500 acres in bearing in Imperial County; in 1929 there were 4,680 acres. Indications point to a still further increase during the next few years since in 1929 about 3,600 acres were not yet in bearing.

The bearing acreage in Arizona increased from 560 acres in 1924 to 1,640 acres in 1929. The nonbearing acreage in 1929 amounted to 2,900 acres. It appears, therefore, that the bearing acreage in that state may be more than doubled within the next few years. Furthermore, large additional plantings are in prospect.

In Texas there has been a phenomenal expansion in the acreage and production of grapefruit during recent years. The total grapefruit acreage in the lower Rio Grande Valley of Texas in 1930 amounted to 60,000 acres, of which only 10,200, or 17 per cent were five years of age and older. During the past three years almost 40,000 acres have been planted to grapefruit in that valley. Although the freeze that occurred in 1930 nipped back many of the younger orchards, the setback to the industry appears to be only temporary. Carlot shipments of grapefruit from Texas have increased from 8 cars in 1921-22 to 3,493 cars in 1929-30. In view of the probable increase in bearing acreage it may be expected that the upward trend in shipments will continue.

Although most of the 80,000 acres of grapefruit in Florida are now in bearing, many of the trees have not yet reached full size. Production is increasing about 5 per cent a year and will continue to increase for several years more.

During the past decade there has been a substantial increase in the demand for winter grapefruit. A further increase in demand both in this country and in Europe can reasonably be expected. Unless the future increase in demand is even greater than that which has

occurred, however, the favorable price level of recent years is not likely to be maintained.

Thus far Florida and Porto Rico have supplied the bulk of the grapefruit consumed in the European markets, but during the coming years their grapefruit is likely to meet considerably more competition in the foreign markets than they have experienced in the past. Palestine, West Indies, Brazil, and South Africa are rapidly becoming important grapefruit-producing countries.

Canning of grapefruit in Florida has increased rapidly during the past five years. In 1925-26 the pack amounted to 400,000 cases as against 1,316,000 cases in 1929-30. Present indications are that canning will continue to provide an increasing outlet for grapefruit. It should be recognized, however, that canned grapefruit competes to a considerable extent with fresh grapefruit.

In recent years there have been practically no plantings of grapefruit in sections which ship during the summer months. Most of the acreage is now in full bearing. Consequently, supplies of fresh summer grapefruit are not likely to increase materially for some time. The demand for summer grapefruit has increased even more rapidly than the demand for winter grapefruit. During the three years from 1922-23 to 1924-25 f.o.b. prices of summer grapefruit averaged only 20 cents a box higher than those of winter grapefruit, whereas during the past three years they have averaged 85 cents a box higher.

LEMONS

Growers should not expect the very high prices for lemons which prevailed in 1929-30 to continue during the coming years. These high prices were largely the result of unusually small shipments during the winter months and of an abnormally heavy demand for lemons during the summer months, due to excessively warm weather throughout the country.

During the four months of June to September, 1930, the temperatures in the fourteen principal lemon consuming markets of the United States averaged 2.5 degrees above normal, the highest in twenty years with the single exception of 1921, and as a result lemon prices in 1930 were fully a dollar a box higher than they would have been if temperatures had been normal.

The 1929-30 crop of lemons amounted to 5,400,000 boxes, as against 7,500,000 boxes in 1928-29 and an average of 6,500,000 boxes during the five years from 1925-26 to 1929-30. From 1919-20 to

1922-23 production averaged 4,500,000 boxes, or 30 per cent less than the average production from 1925-26 to 1929-30. It is not expected, however, that the upward trend in production which occurred during the past decade will continue during the next few years. The available information indicates that lemon production in this state is now at about the peak. In 1929 there were 46,300 acres of lemons in California, of which 94 per cent were bearing and only 6 per cent nonbearing. Furthermore, most of the bearing acreage has not reached the age of full bearing. The present small nonbearing acreage is probably not more than sufficient for normal replacements.

The large increase in the production of lemons in the state during the past decade would have resulted in materially lower prices to growers than those which occurred had it not been for decreased imports, limitation of domestic shipments, and increased demand.

Imports of lemons during the four years from 1925-26 to 1928-29 averaged 830,000 boxes as against an average of 1,364,000 boxes from 1919-20 to 1922-23, a decrease of 39 per cent. It is not to be expected, however, that there will be a further material decrease in imports during the coming years. There are some indications that the downward trend has already been checked. In 1929-30 imports amounted to 1,127,000 boxes, which is 36 per cent above the average of the previous four years. There has been a gradual upward trend in the production of lemons in Italy, rising from an average of 9,600,000 boxes in 1921-1923 to an average of 12,100,000 boxes in 1927-1929.

From 1920-21 to 1927-28 there was a steady upward trend in the demand for lemons in this country, rising at the rate of about 200,000 boxes a year. During the past two years, however, the trend of demand has increased at the rate of only 100,000 boxes a year, which indicates a definite tendency for the upward trend in demand to level off.

Despite the decrease in imports and the increase in demand there has been a substantial surplus of lemons during recent years whenever the crop has been average or above. During the four years from 1926-27 to 1928-29 an average of 1,500,000 boxes a year were sent to product plants on a salvage basis or dumped. If all of the lemons produced during those years had been shipped, disastrously low prices to growers would have resulted.

During the coming years it is probable that limitation of shipments will have to be continued if prices are to be maintained at the level of recent years. While no material increase in production of lemons in this state is in prospect during the next few years, neither is there

likely to be a pronounced decline. The present level of domestic production of around 6,500,000 boxes plus net imports of 630,000 boxes (the average of the past five years) is considerably in excess of the probable demand for lemons in this country several years hence. It is not likely to take an increase in the total supply of lemons of more than 75,000 boxes a year to maintain the present per-capita demand. And even if the per-capita demand should increase as rapidly as it did between 1920-21 and 1927-28, which it is not likely to do, it would be about five years before the demand for lemons at a price of \$4.25 a box, f.o.b. California (the average from 1924-25 to 1928-29) would equal the present normal supply.

ALMONDS

The available facts indicate that the outlook for almonds is reasonably favorable. While any widespread plantings do not appear to be justified, a conservative expansion in the areas best adapted to this crop may be desirable.

The bearing acreage of almonds in California, which is the only state in the Union in which this crop is grown commercially, is now at about the peak. The new acreage coming into bearing during the next few years will probably be no larger than is necessary to replace the acreage that will normally go out of bearing. Consequently, it is expected that the bearing acreage will remain practically stationary. This expected stationary situation is a distinct contrast to the rapid increase in bearing acreage during the past decade. In 1921 the bearing acreage amounted to 41,200 acres, in 1929 to 91,700 acres, an increase of 123 per cent.

Production of almonds in California has also increased rapidly, rising from an average of 7,250 tons in 1921-22 to an average of 12,800 tons in 1927-28. As a result of the severe freeze the 1929 crop was the smallest since 1917, amounting to only 4,600 tons. The 1930 crop is now estimated at 13,500 tons.

Despite the upward trend in the production of almonds in California, the nation now produces only about one-third of the almonds consumed in this country. The remainder is imported mainly from Italy, Spain, and France.

From 1921 to 1926 there was a pronounced downward trend in imports. During five consecutive years imports were smaller than in the preceding year. The total decrease between 1921-22 and 1926-27 amounted to 13,800 tons, in equivalent of unshelled almonds, or 35 per cent. During that same period the increase in the production of

almonds in this state amounted to only 6,750 tons. Consequently, there was a substantial decrease in the total supply of almonds available for consumption in this country. The per-capita supply in equivalent of unshelled almonds averaged to 0.85 pounds for the two years 1921-1922 as against only 0.67 pounds for the two years 1926-1927, a decrease of 21 per cent.

Chiefly as a result of the decline in the per-capita supply of almonds in the United States, there was an upward trend in prices paid to growers, rising from 15.0 cents a pound in 1921 to 17.5 cents a pound in 1928. Prices were unusually high in 1929 and unusually low in 1930.

While prices as low as those paid growers in 1930 are not likely to prevail on the average during the coming years, neither is there likely to be a further upward trend in prices such as occurred between 1921 and 1928. The world production of almonds is likely to average as high during the next few years as in recent years. Production in this state is expected to remain at about the present level and there is no available evidence that there will be any pronounced downward trend in production in the principal foreign almond-producing countries. Most of these foreign countries produce a much larger volume of almonds than they consume; consequently, the surplus must be sold in other countries. The United States has been an important market for a portion of that surplus for many years.

Another factor that growers should consider when deciding whether to plant almonds is the prospective increase in competition from walnuts and pecans. The production of both walnuts and pecans is likely to be materially larger during the next few years than it has been in recent years. It appears, therefore, that almonds may be subjected to keener competition from these nuts in the consuming markets during the coming years than they have experienced in the past.

WALNUTS

The production of walnuts already in prospect will probably be more than sufficient to supply the domestic requirements for unshelled walnuts at the present level of prices, unless there is an extraordinary increase in the demand for them. If such an increase in demand does not occur, the future trend of prices to growers may be expected to be downward.

The total acreage of walnuts in California, which produces about 97 per cent of the commercial crop of the nation, amounted to approximately 127,480 acres in 1929. Of that amount 87,560 acres, or 69

per cent, were classified as bearing and 39,920 acres, or 31 per cent, as nonbearing. According to the forecasts of the California Cooperative Crop Reporting Service there will be about 107,500 acres in bearing by 1932, about 23 per cent greater than the bearing acreage in 1929 and about 50 per cent greater than the bearing acreage in 1926.

During the past decade there has been a pronounced upward trend in the production of walnuts in this state, rising from 24,000 tons in 1921 to 37,000 tons in 1930, an increase of 13,000 tons, or 54 per cent. The actual production in 1930 was about 16 per cent below the trend. A part of the increase in the trend of production has been offset by a decline in imports of unshelled walnuts, which compete most severely with the California product. The average imports of unshelled walnuts during the three years from 1920-21 to 1922-23 amounted to 12,800 tons, as against an average of 5,300 tons during the past three years. On the other hand, imports of shelled walnuts have been almost as large during the past three years as they were during the three years from 1920-21 to 1922-23. They have, however, been considerably smaller than they were during the three years from 1924-25 to 1926-27. During these three years imports of both shelled and unshelled walnuts were very large.

As a result of the prospective increase in domestic production and the probability of lower prices in this country, imports of both shelled and unshelled walnuts may average lower during the next few years than from 1927-28 to 1929-30. The potential competition from foreign countries, however, may be even greater during the coming years than it has been in recent years. Most of the United States imports of walnuts come from France, Italy, and China. According to the available information, some increase in walnut production is in prospect in both France and Italy.

Since the imports of unshelled walnuts are now relatively small, averaging only 5,300 tons during the past three years, it is evident that only a further small increase in the production in this state is required to supply domestic requirements at the present level of prices. In order to dispose of the large increase in production that is in prospect it will probably be necessary to reduce the prices on the unshelled nuts and to shell a larger proportion of the crop.

The large prospective increase in the production of improved pecans, most of which are marketed in the shell, may add considerably to the competition that California walnuts meet in the consuming market. A recent survey indicates that of an estimated total of 8,000,000 trees of improved varieties, 65 per cent were planted during the past ten years and 40 per cent during the past five years.

OLIVES

Judging from the information now available it appears that there will be a gradual upward trend in prices of olives beginning within the next four or five years. While several things may happen which would hasten or delay this expected improvement in prices, only a very unusual condition could prevent average returns to growers from being materially higher in from 7 to 10 years hence than the level of recent years.

The commercial production of olives in the United States is virtually confined to California. During the past decade there has been a substantial increase in the commercial production of olives in this state, rising from an average of 11,700 tons in 1921-1923 to an average of 19,500 tons in 1927-1929. During the next few years, however, only a small further increase in production is expected unless, of course, yields per acre are materially increased through better care of the orchards. Plantings of olives during recent years have been small. Most of the acreage of Mission and Manzanillo olives is now at about the age of full bearing. On the other hand, only about one-third of the acreage of large-type olives—Sevillano, Ascolano, and Barouni—is in full bearing. Practically all of the increase in total production during the next few years will, therefore, be in the large-type olives, which are used mainly for canning. During the three years 1926-27 to 1929-30 the combined pack of Sevillano, Ascolano, and Barouni olives constituted about 15 per cent of the total pack.

During the past four years an average of 58 per cent of the commercial production of olives in the state was canned, 36 per cent pressed for oil, and 6 per cent shipped fresh and dried.

California produces only a very small part of the edible olive oil used in this country. During the past nine years about 98 per cent of the edible oil consumed in the United States was imported, mainly from Italy, Spain and France. Prices of edible olive oil, although much above prices of other oils such as cottonseed, coconut and corn, have at no time in the past decade been sufficiently high to return to California producers of oil olives a satisfactory price. At the present time there are no definite indications which point toward materially higher prices for oil olives during the next few years.

During the past decade there has been a substantial increase in the shipments of canned ripe olives, rising from an average of 304,000 cases a year in 1921-1923 to an average of 634,000 cases a year in

1927-1929, which is an average increase of 55,000 cases a year. This upward trend in shipments, however, did not result in a downward trend in prices, which is evidence that the trend of demand for canned ripe olives, as measured by quantity, has increased at the rate of about 55,000 cases a year.

From 1926-27 to 1928-29 the packs of canned ripe olives increased even faster than shipments, and consequently there was a gradual accumulation of stocks on hand, rising from 105,000 cases on November 1, 1927, to 260,000 cases on November 1, 1929. Although the pack in 1929-30 amounted to only 635,000 cases or 230,000 cases less than the 1928-29 pack, shipments in 1929-30 amounted to only 588,000 cases, so that the carryover on November 1, 1930, was 47,000 cases larger than in the previous year.

This large carryover of 307,000 cases on November 1, 1930, is the most serious factor in the present situation. With prices and packs equal to the average of the past three years it will take about five years to reduce the carryover to a nominal amount if the future increase in demand is no more rapid than it has been on the average during the past decade. However, if the packs during the next few years should be small or if the demand should increase more rapidly than in the past, the carryover could be disposed of in a much shorter time.

The available information on business conditions and employment in this country indicates that the 1930-31 pack will be marketed under conditions materially less favorable than the average of the past three years. This recent decreased demand for canned ripe olives, however, is likely to be only temporary. There are no fundamental factors yet apparent which would indicate that the upward trend in demand, which occurred during the past decade, will not continue for some years at least. Indications are that the future trend of demand over a period of years will increase faster than the future trend of supply. It is, of course, impossible to determine exactly when the demand will exceed the supply at the present level of prices. The probability is, however, that such a condition will occur within the next four or five years. Prices may then be expected to improve. Each rise in prices, however, will tend to bring into operation two sets of forces which will retard a further rise in prices. An increase in prices to consumers will tend to reduce consumption in the established markets and at the same time, by encouraging the olive growers to take better care of their orchards, will tend to increase the supply.

BEEF CATTLE

Beef cattle prices during the first half of 1931 are expected to average considerably below those of the first half of 1930, but prices of most classes and grades during the second half will probably average about the same as those of a year earlier. Slaughter supplies in 1931 probably will be larger than those of last year but the increase will be mainly in unfinished cattle marketed during the last half of the year, and by that time consumer demand for beef will probably be above the present low level.

Consumer demand for beef and veal was considerably weaker during 1930 than the unusually strong demand of 1928 and 1929, due in large part to the unfavorable economic situation as reflected by declines in business activity, money incomes of consumers, and the general price level. Unusually high temperatures during July and August also materially reduced the demand for beef. Per capita consumption of Federally inspected beef amounted to 35.7 pounds during the first 11 months of 1930, compared with 37.0 pounds during the corresponding period of 1929, a decrease of 3.3 per cent. This decrease was accompanied by average declines for the period of 2.8 cents per pound, or 8.2 per cent, in retail prices of beef and 2 cents per pound, or 18.8 per cent in live cattle prices. Demand for beef in 1931 will be governed largely by the trend of business conditions during the year. With industrial activity and money incomes of consumers at an unusually low level at the beginning of the year and with no definite evidence of immediate improvement, consumer demand of 1931 is likely to average considerably lower than during the first six months of 1930.

In the second half of the year several conditions may develop which would tend to strengthen cattle prices. These are: (1) a marked scarcity of grain-fed steers; (2) improving consumer demand for beef due to increasing industrial activity, cooler temperatures than prevailed in July and August, 1930, and smaller supplies of fresh pork to compete with beef; (3) a stronger feeder demand than prevailed a year earlier as a result of fairly favorable returns from 1930-31 feeding operations and prospects of a much larger production of feed in 1931 than in 1930. A price depressing influence that would at least partly offset the foregoing favorable factors is the probability of larger marketings of grass cattle than those of the second half of 1930. This would have its greatest effect on prices of the lower grades.

An unfavorable factor in the beef situation is the possibility that a large number of dairy cows may be sold for slaughter during 1931. Prices of dairy products have been declining and this will tend to encourage the sale of dairy cows for slaughter. Furthermore, the lower prices of dairy products may continue to discourage the practice of keeping dairy cows to an older age.

From the long time outlook total cattle production is now definitely on the upswing of a new cycle. On January 1, 1931, the number of all cattle on farms was 58,955,000 head, an increase of 977,000 head over the number January 1, 1930. The increase in 1930 was the third annual increase since cattle numbers reached the low point of the production cycle in 1928. As in both 1928 and 1929 the increase in numbers of all cattle in 1930 was in large part due to the increase in milk cows. The total increase in cattle numbers between January 1, 1928 and January 1, 1931 was 3,279,000 head. Of this increase, 35 per cent was in cows and heifers 2 years old and over kept for milk, 15 per cent in yearling heifers being kept for milk cows, 18 per cent in calves other than those saved for milk cows, 23 per cent in beef cows and heifers 1 year old and over, and 9 per cent in steers and bulls. During the next few years, however, most of the increase in total numbers of cattle will probably be in beef cattle, since the numbers of dairy cattle will probably not change materially.

Indications are that the present upward trend in production will not reach so high a peak and that the rate of expansion will be more moderate than in the preceding cycle which began in 1912 and reached its peak in 1918. During the former cycle cattle numbers increased 7,500,000 head in the first three years, and 16,000,000 head from the low point to the peak, whereas in the first three years of the present cycle numbers have increased only 3,279,000 head. It is to be remembered that expansion in numbers during the former cycle was stimulated by war-time demands for about three years beyond the point where it would normally have been checked by the influence of increased market supplies on prices. Also at the beginning of the previous cattle production cycle, sheep production was declining rapidly in the Western States and this made range and feed available for expanding the cattle business; and from 1912 to 1916 cattle numbers in this area increased very rapidly. Although some decrease in sheep production from present levels seems likely, there is little probability that this decrease will be at all comparable in magnitude with that from 1911 to 1916. Cattle production in this area is expected to increase only moderately within the next few years.

On the other hand, considerable expansion in cattle numbers may come in the Corn Belt states, and especially in the area west of the Mississippi River. The large decrease in horse production, with the consequent increase in pasturage and feed for other livestock, the unprofitableness of the poorer lands for grain production and their greater possibilities for cattle production if consolidated into larger units, the need for more legumes, and the probability that the relative unfavorableness of cash grain production as compared with livestock production will continue, all furnish incentives for increasing cattle production in this area.

DAIRY

The dairy industry is faced with the prospect of continued low average prices in 1931. The long time outlook, however, is more favorable.

The number of milk cows on farms in the United States January 1, 1931 was 2.4 per cent larger than a year ago and average milk production per cow in 1931 is likely to exceed that of 1930 when it was reduced chiefly as the result of drought and poor pastures. For the year as a whole, milk production per cow was 2 per cent lower in 1930 than in 1929, but since November 1, 1930 it has been running above the corresponding period of 1929, and on January 1, 1931 averaged 2 per cent above that of a year earlier. Most of this increase occurred in the north central states. In much of that area oats, barley, rye, and wheat are selling at prices that are relatively even lower than the price of butterfat, and farmers appear to be feeding fairly heavily and to be milking more of their cows in an effort to piece out their greatly reduced incomes.

In California there was a decrease of 2 per cent in numbers of milk cows while in the western states as a whole there was an increase of approximately 1 per cent.

The depression of 1930 was accompanied by marked decreases in the amount of money spent by consumers for dairy products. Estimated consumption of butter in 1930 was slightly less than in 1929, despite the fact that retail prices were 15 per cent lower. During the first 11 months of 1930 trade output of cheese declined 1.7 per cent, while retail prices were 7 per cent lower than in the preceding year. The consumption of condensed and evaporated milk during 1930 decreased 3.8 per cent, with prices about 10 per cent lower. Consumption during the last quarter of 1930, however, tended to increase. This probably was due to a shift from fluid milk and cream to con-

centrated milk for household purposes. Current trade reports during the latter part of 1930 indicate a considerable decrease in fluid milk sales. With the depression in business continuing, no marked increase in demand for dairy products is in prospect for the next few months.

The low prices of butter during the summer of 1930 stimulated the storage of butter, even though the previous season was unprofitable. The unusual price declines during the period following the into-storage movement, however, made storage operations again unprofitable. Because of this it seems quite probable that storage operators will be reluctant to store butter during the coming storage season except at decidedly lower prices than prevailed during the 1930 into-storage season. On January 1, 1931 total stocks of butter in storage amounted to 63,349,000 pounds, compared with 81,935,000 pounds on January 1, 1930. This was 18,586,000 pounds under a year ago, but was an increase of 11,521,000 pounds above the January 1, 5-year average.

The decline in butter prices which started in the latter part of 1929, continued during 1930. The average price of 92 score butter at San Francisco during 1930 was 36.3 cents per pound, compared with 45.7 cents in 1929, and a 5-year average of 45.4 cents. Average prices in December 1930 were the lowest for that month since 1915, and the 1930 annual average price, the lowest since 1916.

Although the present very low prices of dairy products are not expected to continue for several years, California dairymen face an extended period of keener competition than that which has been experienced during the past decade. The number of yearling heifers being kept for milk on farms on January 1, 1931 was 10 per cent above the average of the past 6 years and appears to be not far from 10 per cent above the number normally required to maintain dairy herds at their present size. Some further increase in the number of milk cows, therefore, is to be expected during the next year or two. Thereafter, however, there may be a decline.

The number of heifer calves under one year old on farms in the dairy sections on January 1, 1931 appears to be about 8 per cent below the number on hand in 1930 and the number of heifer calves saved in 1931, to be raised for milk cows, will probably be further reduced because the number of heifers raised has tended to vary with the price of cows. In sympathy with rising prices for beef and butter, the average price of milk cows rose steadily reaching a peak in the summer of 1929, which was slightly above the previous high record set in 1919. These prices caused farmers to save increasing numbers of heifer calves for dairy purposes until 1929, the increase

being particularly marked in the eastern states, and in areas which raise cows for sale. Since the summer of 1929 the prices of milk cows being sold have dropped steadily and some further decline is probable. So long as the price of cows is low, a relatively small number of heifer calves of dairy breeds will be saved. The number of such calves saved in 1930 appears to be about the number normally required for the replacement of aged cows. The number saved in 1931 will probably be substantially lower and this will begin to be reflected in a smaller number of heifers coming into production late in 1933.

In the present situation several conditions may tend to prevent the usual prompt reduction in supply to meet curtailed demand, and to keep the total output relatively larger in the next few years than in recent years. First of these is the lower return from a number of other farm enterprises, which has been in a large measure responsible for the recent expansion in dairying. With the apparently contracting outlet for American pork products abroad, with sheep prices low, and with an expanding beef cattle enterprise, livestock production for meat is likely to be more generally supplemented by dairy production as a means of getting added income. Similarly, new developments in the production of wheat tend to reduce its importance in the older wheat-producing areas and again to turn more of the farm resources into dairying. Throughout the eastern half of the Cotton Belt, as well as the more hilly parts of the western portion, competitive conditions are such as to cause farmers to look for new enterprises to replace or partly to supplement the older cash crops.

The long time trend of demand for dairy products is expected to be upward. During the past decade there was a substantial increase in per capita demand and with the return of business conditions to normal, this upward trend may be resumed. Population growth will also make for an increase in demand. One of the most hopeful signs in the California dairy industry is the increasing percentage of dairy products utilized in the form of higher-priced products such as fluid milk and cream. Since the population of California is increasing at a rapid rate, a further increase in the local markets for these products may be expected.

HOGS

Prices of hogs for the year ending September 30, 1931, will probably average lower than in 1929-30. Although supplies for slaughter may be somewhat smaller, this is expected to be more than offset by the weaker demand for hog products. During the marketing year which begins October 1, 1931, however, the hog industry is

expected to be in a more favorable position than in the current year since indications point to slightly smaller supplies and to some improvement in both domestic and foreign demand.

The number of hogs on farms in the United States on January 1, 1931, was 52,323,000 head, or 1.7 per cent smaller than on January 1, 1930. Since it is during the nine months, January to September 1931, that most of the hogs on farms January 1 going into the commercial supply will be marketed, slaughter will probably be slightly smaller than in the same period of 1930. In addition, it is not unlikely that a larger than usual percentage of brood sows and fall pigs now on farms will be carried over and finished out on new corn next fall, especially in areas where corn production in 1930 was short.

Storage holdings of pork on January 1, 1931, amounting to 523,317,000 pounds, were about 16 per cent smaller than those of January 1, 1930 and 5 per cent smaller than the 5-year January 1 average. Lard stocks on January 1, amounting to 51,064,000 pounds, were the smallest for that date since 1927 and 38 per cent smaller than on January 1, 1930. The decrease in storage holdings of pork and lard under those of a year earlier is equivalent to about 800,000 hogs, and as compared with January 1, 1929 is equivalent to 1,100,000 hogs.

Consumer demand for pork products during the marketing year, 1929-30, was considerably weaker than the unusually strong demand which prevailed during 1928-29, but it was not greatly different from the 6-year average, 1922-23 to 1927-28. The average price received for the total live weight of hogs slaughtered, and the average retail price paid for the total quantity of pork consumed were about the same as those indicated by the relationship which existed between quantities and prices during the six years preceding 1928-29.

United States per capita consumption of pork and lard from Federally inspected slaughter during the year ended September 30, 1930, decreased 3.5 per cent from that of the corresponding year of 1928-29, while retail prices declined 2.6 per cent and hog prices 4 per cent. Demand during the last half of the marketing year was much weaker than the relatively high average level which prevailed during the first half. During the first two months of the present marketing year (October and November, 1930) per capita consumption was 14.4 per cent less than that of the same months a year earlier, while retail prices were 3.6 per cent and hog prices 3.7 per cent lower.

The decrease in the domestic demand for pork during 1930 from the high level of 1929 was brought about by a change in economic

conditions as indicated by a marked decrease in business activity, a lower general price level and a reduction in money incomes of consumers. This demand can be expected to improve soon after business activity increases, but it will probably average lower during the first half of 1931 than in 1930.

Continued heavy supplies of European hogs and pork products and a reduced foreign demand for American products during most of the hog marketing year which ends September 30, 1931, are in prospect. United States exports of pork and lard for that period are expected to fall below the low 1929-30 levels. Exports from this country during the three months, October to December 1930, were about 45 per cent smaller than those of the corresponding months of 1929.

Outstanding points in the present European hog and pork situation are: (1) Unusually large numbers of hogs in most European producing countries in October, 1930, notably in Germany; (2) a low-priced feed supply larger than that of last year, which, despite lower hog values, makes pork production profitable in most countries except Germany; (3) a downward tendency in the prices of hogs, cured pork and lard; and (4) no indication of any significant increase in buying power in the leading markets for American pork products during 1931.

Supplies during the marketing year, 1931-32 will come largely from the spring and fall pig crops of 1931. The December 1, 1930 Pig Survey of the Department indicated that the number of sows to farrow in the spring of 1931 would be at least as large as in 1930 in the North Central States, and pointed to a considerable increase in other areas, especially in the South. In view of the exceptionally large average number of pigs saved per litter in the spring of 1930, however, it is hardly likely that as large an average will be saved in 1931. Hence, the number of pigs saved in the spring of 1931 may be somewhat smaller than in the spring of 1930. European supplies of hogs during the year 1931-32 will probably also be smaller than in the current year. Furthermore the demand for hog products in both the domestic and European markets is expected to improve during the marketing year beginning October 1, 1931.

POULTRY AND EGGS

When pullets hatched in 1931 come into production, prices of eggs will probably be considerable above the present level. Supplies of eggs next fall and winter are expected to be lower and consumer demand higher than the corresponding period of 1930-31.

The relatively low prices of eggs such as now prevail, have in the past resulted in a substantial decrease in the number of pullets raised. Reports from commercial hatcheries indicate a material reduction in chicks to be hatched in the spring of 1931. These indications point toward a smaller number of birds in laying flocks next fall. Furthermore, in view of the losses of storage operators last year, it is likely that storage stocks this year will be smaller and will offer less competition to fresh egg receipts. This spring will be the time for the poultryman who has facilities for egg production to put in sufficient young stock to keep his poultry plant operating at full capacity during this fall and during next year.

Relatively heavy production during the late winter and early spring of 1929-30, weak demand at prevailing prices for immediate consumption, and the impression prevailing that the general economic situation would improve the last half of the year resulted in a rapid accumulation of eggs in storage during the first half of 1930. On August 1, a total of 11,202,000 cases of shell eggs was reported in storage, the largest ever recorded. With a fall production that exceeded expectations, owners of cold storage eggs found more than the normal fall competition from fresh eggs, and in order to move their stocks were forced to reduce their prices radically, which resulted in a material increase in consumption during the last three months of the year. Stocks of eggs in storage on January 1, 1931, were still exceptionally large for that date amounting to 1,891,000 cases as compared with 704,000 cases on the same date the previous year and 1,156,000 cases for the five-year average. On January 1, 1931, cold storage holdings of frozen eggs amounted to 73,000,000 pounds as compared with 53,000,000 pounds on January 1, 1930.

The 1931 spring prices are likely to be much below those of the spring of 1930. Prices may be so low that only the most careful and the most efficient poultrymen can make a profit, and even this may be very small. Those below the average of efficiency will either be forced out of business or compelled to draw on their reserves to maintain themselves in business. Present conditions indicate a weak demand on

the part of storage operators during the coming spring, due to heavy losses this past fall and winter on eggs stored last spring. Also with relatively heavy stocks of frozen eggs on hand as of January 1, 1931, the demand for eggs by breaking plants will be less urgent than last year. Further, it is expected that fewer eggs will be used by commercial hatcheries this spring.

There is a bright spot in the egg price picture in California and that is that the prices of poultry feeds will probably continue to be low for the next few months. Eggs can now be produced for five to six cents a dozen less than the average of recent years.

Reasonably cheap meat cuts make it difficult to maintain poultry prices at a high level. It is highly probable that Leghorn hen prices will be several cents lower than the prices which were effective during 1930. The broiler situation appears to be in a more favorable situation. Storage holdings are low and this condition together with a prospective lighter hatch of chicks in the spring of 1931 gives the market a more satisfactory outlook.

SHEEP

Although fed lambs are not likely to compete as severely with California spring lambs in 1931 as in 1930, this may be more than offset by the decrease in consumer demand.

On January 1, 1931, the number of sheep and lambs on feed for market was 775,000 head smaller than a year earlier. Since the reduction in feeding is largely in the late marketing areas of Colorado and western Nebraska, it is to be expected that the greatest falling off in slaughter from last year will be in March and April. This situation is a favorable factor from the standpoint of the early lamb shipper in California. The reduction in slaughter during March and April, however, may not be as large as the reduction in numbers on feed. Relatively large numbers of ewe lambs are being held in some western states that may be marketed if prices advance sufficiently; and material advance in prices might also be expected to result in the marketing of other lambs and sheep not now on feed.

In the early lambing sections of California and Arizona conditions to the end of January have been more favorable this season than last, and present indications are that the early crop in these states will be at least as large as a year ago. The early lambing states of the Southwest were in the center of the 1930 drought area, where feed supplies have been low, but weather conditions to the end of January have been exceptionally favorable. It seems hardly likely that the percentage

lamb crop in these states will be as large as in 1930, and there was a small reduction in the number of breeding ewes.

Demand for lamb and mutton is likely to remain around the present low level for the first half of 1931. Per capita consumption of Federally inspected lamb and mutton in the first 11 months of the year, increased from 4.18 pounds in 1929 to 4.83 pounds in 1930, or 15.6 per cent. The average wholesale price of medium and good grade dressed lamb at New York, however, declined from \$26.26 per 100 pounds for the first period to \$19.93 for the second. The United States average price for leg of lamb at retail as reported by the Bureau of Labor Statistics fell from 40.3 cents to 35.4 cents per pound. The average price paid for slaughter sheep and lambs dropped from \$13.36 to \$9.11 per 100 pounds. The reductions between the two periods amounted to 4.25 cents per pound, or 32 per cent, in the price of live sheep and lambs; 6.33 cents per pound, or 24 per cent, in the New York wholesale price of carcass lamb; and 4.9 cents per pound, or 12 per cent, in the retail price of leg of lamb.

Sheep numbers in the United States on January 1, 1931, were probably the largest for that date in the history of the country, amounting to 51,911,000 head compared with 50,503,000 head January 1, 1930, and 36,186,000 head January 1, 1922, which year was the last low point in the domestic sheep cycle. The increase in numbers in 1930 was in breeding and stock sheep, a distinct contrast to 1929 when the increase was largely in numbers on feed. Sheep numbers in California on January 1, 1931, were the largest for that date since the nineties. Although the Federally inspected slaughter of both sheep and lambs in 1930 was 2,700,000 head larger than in 1929 there was an actual decrease of 300,000 head in the slaughter of sheep. The small slaughter of ewes in 1930 tended to increase breeding stock.

Sheep and lamb prices in 1930 continued the downward trend which began in April 1929 and in the last quarter of the year reached the lowest levels since 1924. The average price of spring lambs during the spring lamb season, March 1930 to June 1930, was \$8.77 per 100 pounds as compared to \$13.22 paid during the corresponding period a year earlier, a decline of 34 per cent. Inspected slaughter during this period was 22 per cent or 974,000 head larger than that of the corresponding period of 1929. The average price paid for lambs during the entire 1930 season in California was \$8.79 per 100 pounds compared with \$12.33 per 100 pounds during 1929, a decline of 29 per cent. Aged sheep in California in 1930 brought an average of \$5.55 per 100 pounds compared with \$8.05 in 1929, a decline of 31 per cent.

World wool production is still near the peak reached in 1928, and although production in 1931 may not be much below that of 1930, prices now prevailing are likely to reduce production materially in the next few years. Production in 15 important countries in 1930 was approximately 1 per cent higher than in 1929, but about 1 per cent lower than in 1928. In the pronounced upward trend of the present cycle, world production (exclusive of Russia and China) rose from 2,566,000,000 pounds in 1923 to 3,232,000,000 pounds in 1928. Most of this increase occurred in countries of the Southern Hemisphere and in the United States. Both in the United States and in foreign countries as a whole, the production of fine wools increased proportionately more than that of medium and coarser wools. The greater increase in the production of fine wools came in response to the relatively high prices for such wools following the war. Decreases in total wool production in the next few years will probably come mostly in fine wools.

Wool prices in the United States continued the general downward movement during 1930 that had been in progress since 1928. After falling steadily for the first five months of the year, they remained about steady until autumn, then started downward again and were still falling in January 1931.

The low prices now prevailing for lamb and wool may be expected to result in substantial decreases in supplies within the next few years. Furthermore, demand particularly for lamb, will probably increase materially. These forces may be expected to result in a gradual improvement in the sheep industry.

ASPARAGUS

According to a survey made by the Cannery League of California, growers intend to plant 10,000 additional acres of asparagus in northern California in 1931. If these intentions are carried out, the California asparagus industry will be faced with the prospect of prices considerably lower than the average of recent years.

The planting of 10,000 acres to asparagus in 1931 would bring the total plantings for the three years 1929-1931 up to 26,000 acres. These plantings will, of course, come into bearing during the three years of 1931-1933. The acreage that will be removed during those three years, however, will probably not exceed 8,000 acres. Thus, a net increase in bearing acreage of 18,000 acres by 1933 may be expected if present planting intentions are carried out.

Based upon the available data on acreage by age of beds and average yields per acre, it may be expected that the normal crop in 1931 will be around 4,000,000 cannery boxes, in 1932, 4,200,000 cannery boxes, and in 1933, 4,400,000 cannery boxes. In making this estimate it was assumed that the 9,488 acres planted in 1930 will come into bearing in 1932, and that 10,000 acres will be planted in 1931 which will come into bearing in 1933. It was also assumed that 2,600 acres will be plowed out in the fall of 1931 and that 3,400 acres will be plowed out in the fall of 1932.

During the four years 1927-1930 an average of 889,000 cannery boxes, or 25 per cent of the total, were utilized for fresh consumption. During this period there was only a small upward trend in the demand for California table asparagus, amounting to the equivalent of about 20,000 cannery boxes a year. There is no evidence that the increase in the demand for California table asparagus during the next few years will be any greater than in the past four years, and it may not even be as great. In the eastern markets California table asparagus meets with considerable competition from that grown in Georgia and South Carolina. Indications are that the production in those states will average materially higher during the next few years.

Even if the demand for our table asparagus should continue to increase as fast as in the past, it will provide an outlet for only a small part of the prospective increase in our production. At a price equal to the average of the past four years about all the California table asparagus that can be expected to be sold under normal conditions in 1931 is 900,000 cannery boxes, in 1932, 920,000 cannery boxes, and in 1933, 940,000 cannery boxes. Quantities larger than these can probably not be sold except at prices below the average of the past four years.

If only the amounts listed above are utilized for fresh consumption the volume available for canning in 1931 will probably be around 3,100,000 cannery boxes, provided of course that yields per acre are average. In 1932 it may be expected that 3,280,000 boxes will be available for canning and in 1933, 3,460,000 boxes. If these quantities were canned it would result in a pack of 2,768,000 cases in 1931, 2,929,000 cases in 1932, and 3,089,000 cases in 1933.

While there has been no material change in canners' selling prices since 1925, there has been a substantial increase in the consumption of canned asparagus. This is evidence, of course, of an upward trend in demand. Although the demand has been lower for the 1930 crop than for the 1929 crop due to the business depression and it appears

that the demand for the 1931 crop will also be below normal, there is no evidence that the trend of demand will not continue upward for some years. There is considerable evidence, however, that the increase in the trend of demand during the coming years will not be as rapid as in recent years. From the data now available it appears that, if the buying power of consumers were normal, about 2,680,000 cases of canned asparagus could have been sold in 1930 at prices equal to the average of recent years, 2,750,000 cases in 1931, 2,800,000 cases in 1932, and 2,840,000 cases in 1933. Thus under normal conditions it is likely that the volume canned in 1930 and volume available for canning in 1931 could be sold without reducing prices. In 1932, however, it is probable that the volume available for canning will exceed the normal demand by over 100,000 cases, while in 1933 the volume available for canning will probably exceed the normal demand by over 200,000 cases. Even if there had been no severe business depression, therefore, it is probable that the increased production resulting from such large plantings as were made in 1930 and as are contemplated in 1931 could not be sold except at lower prices. In the 1930 Agricultural Outlook for California it was pointed out that plantings in 1930 and 1931 no larger than in 1929 would apparently take care of the necessary replacements and in addition provide for about all of the increased supplies that can be sold without lowering prices. There appears to be no reason for revising these estimates upward.

The situation now facing the asparagus industry is, of course, much more serious than it would have been under normal conditions. Because of the depressed business conditions and unemployment the 1930 pack of canned asparagus is being marketed under demand conditions materially less favorable than the average of recent years. Although data on sales during 1930 are not available there is every reason to believe that there will be a very substantial carryover at the beginning of the 1931 canning season. Exports of canned asparagus during the five months May to September, 1930 were 43 per cent less than they were during the same five months of 1929, and export prices were 17 cents a case lower. Unless the 1931 pack is curtailed or the prices materially reduced it is likely that the carryover into the 1932 season will also be large. Although there will probably be some improvement in business conditions and employment during 1931, it is not likely to be rapid and will probably be considerably below the levels of 1928 and 1929. It may be 1932 before the buying power of consumers again reaches normal and by that time it is probable that the industry will have accumulated a very considerable carryover. After 1932 the annual supply available for canning will

probably exceed the normal demand at prices equal to the average of recent years if growers carry out their intentions to plant 10,000 acres to asparagus this winter. Under these conditions it is difficult to see how prices to growers would be maintained.

Growers who intend to plant the 10,000 acres in 1931 should not, therefore, expect to obtain a satisfactory return from this acreage when it comes into bearing unless they can produce asparagus at prices considerable below the average of recent years. Furthermore large plantings at this time may result in substantially decreased returns from the acreage already in bearing. In order to avoid that situation new plantings in 1931 should not be more than 2,000 acres, rather than the 10,000 acres contemplated.

BEANS

Prices of most of the varieties of beans grown in California are likely to be somewhat higher in 1931-32 than they are in 1930-31. The very low prices now prevailing will tend to reduce the acreage planted in 1931. Yields per acre are not likely to be as high as they were in 1930 when they were 11.3 per cent above the average of the previous five years and 12.7 per cent above those in 1929.

The total acreage of beans harvested in California in 1930 amounted to 363,000 acres, the largest acreage since 1920, and 23 per cent above the average of the previous five years. Total production amounted to 4,159,000 bags as compared with 3,396,000 bags in 1929 and a five-year average, 1925-1929, of 3,052,000 bags. Production of all varieties in California except Pinks was larger in 1930 than in 1929. The principal increases, however, were in Limas, Baby Limas, and Blackeyes.

In 1930 the production of Standard Lima beans was 1,065,000 bags and Baby Lima 690,000 bags; the carryover of both was 19,000 bags. The combined total supply of Lima was, therefore, 1,774,000 bags, an amount in excess of that of 1929 by 300,000 bags or an increase of 20 per cent, of which 200,000 bags is attributable to Baby Lima. Largely as a result of this increase, Standard Lima 1930-31 prices are averaging 35 per cent and Baby Lima prices 42 per cent below those of 1929-30. The spread, therefore, between the two varieties is now appreciably greater than it was a year ago.

Blackeye supplies experienced the most phenomenal increase; an increase of 20,000 bags in the carryover and 350,000 bags in production which brought the supply to 888,000 bags or 100 per cent greater than that of the previous five years. Blackeye prices for 1930-31 have been averaging 45 per cent below those of 1929-30.

Pink bean supplies at the beginning of the 1930-31 season were slightly less than the 606,000 bag supply of 1929-30. The decrease, however, was more than offset by an increase in Pinto production in this state and in Colorado and New Mexico where it is the principal variety grown. The Pinto bean competes directly with the Pink bean in the consuming markets. Pinto production, estimated at 2,791,000 bags in 1930, is 375,000 bags or 15 per cent above the record crop of 1929. The heavy production both in 1929 and 1930 was due in part to unusually high yields per acre. Prices of Pink beans in California for 1930-31 are averaging 25 per cent under those of 1929-30. Pink bean prices have not, however, declined as much as prices of Baby Limas and Blackeyes.

California prices of Small Whites, Large Whites, Bayos and Cranberries also are averaging from 25 to 30 per cent below the first half of the 1929-30 season. The price of Red Kidney beans has averaged relatively high; 1930-31 prices are running only 6 per cent under those of 1929-30 due to the shortage of Red Kidney beans in Michigan and New York. California bean growers cannot expect more favorable prices for Red Kidneys in 1931-32 as compared with those of 1930-31 because it is unlikely that Michigan and New York will again have low yields next year.

The total production of beans in the United States in 1930 was 13,400,000 bags which is 7 per cent larger than the crop of 1929 and 21 per cent larger than the average production of the five years, 1925-1929, in spite of drought conditions in eastern United States during the 1930 growing season. Large and Small Whites and Pea beans and Red Kidneys were affected by decreased yields due to the drought. Production of Small White and Pea beans decreased from 3,765,000 bags in 1929 to 3,425,000 bags in 1930, Red Kidneys from 527,000 bags to 397,000 bags, and Large Whites from 271,000 to 234,000 bags.

Imports both in 1930 and in 1929 have been stimulated by the shortage of White Pea and Red Kidney beans. Prices of beans produced abroad are so low that they have moved to this country in volume. Japanese Otnashis beans are selling in competition with the highest grade of domestic whites.

COTTON

No large increase in cotton prices is in prospect in 1931. While the very low prices of the 1930 crop will tend to reduce cotton acreage in 1931, this may be largely offset by somewhat higher yields per acre and a larger carryover. Although demand conditions are expected to

be more favorable in the fall of 1931 than they were in the fall of 1930, there is as yet no evidence that the increase in demand will be sufficiently great to raise cotton prices to the level of recent years.

Following years of low prices farmers usually reduce the cotton acreage and spend less for fertilizers. The maximum reduction in acreage since 1900 has been 15 per cent, which occurred in each of the years 1915, 1921 and 1927.

The expected reduction in acreage in 1931 may be partly offset by higher yields per acre. Yields in the United States as a whole were held in check in 1930 by droughts although the drought influence was mitigated to some extent by the reduced weevil damage which resulted. The number of weevils entering hibernation in the fall of 1929 was small because of the drought in that year, and low winter temperatures destroyed many weevils in hibernation. These conditions and the drought prevented widespread weevil damage in 1930. At present there are comparatively small numbers of weevils in the central and western parts of the belt, despite some increase in the number following the late fall rains. In the Atlantic states the weevil numbers are believed to be about the same now as in the corresponding period of 1930. Yields in the eastern states are also influenced by the quantities of fertilizers applied, and following years of reduced income, such as 1930, expenditures for fertilizers are lowered.

The American crop of 1929 amounted to 14,825,000 equivalent 500-pound bales and the world carryover of American cotton at the beginning of the cotton year amounted to about 4,459,000 running bales, according to the Census Bureau, giving a total supply of about 19,300,000 bales of American cotton. This was 1,500,000 bales smaller than the supply of 1927-28, when prices averaged 19.7 cents per pound at the ten markets and about 250,000 bales smaller than in 1928-29, when prices averaged 18.7 cents per pound. The lower prices in 1929-30, despite smaller supplies, were the result of depressed demand. As domestic consumption and exports fell, cotton failed to disappear at the rates of the last few years, and on August 1, 1930, the carryover in this country was the largest since 1921. Stocks of American cotton in foreign countries had been reduced, but with the large increase in the United States the world carryover of American cotton rose from 4,459,000 bales on August 1, 1929, to 6,242,000 bales on August 1, 1930, according to the Census Bureau. The crop was estimated in December, 1930, at 14,243,000 equivalent 500-pound bales. The total composite supply of American cotton in the world is thus indicated to be about 20,500,000 bales for 1930-31. The crop plus

carryover amounted to 19,300,000 bales in 1929-30 and 19,557,000 bales in 1928-29. The indicated supply of American cotton remaining in the United States on January 1, 1931, amounted to 12.7 million bales compared with about 10.2 million bales a year earlier and 9.5 million bales on January 1, 1929.

The rate of cotton consumption usually declines more rapidly during depressions and increases more rapidly during recoveries than does the average of all industrial production. In the present depression cotton consumption in the United States fell sharply until August of 1930 and has made no more than a seasonal recovery since, although industrial production in general declined until December. The textile situation in Great Britain has shown no improvement. Further business recessions are developing in Western Europe, where until recently a large part of the world depression had been avoided. Germany and the rest of Central Europe are still depressed but the increased activity in the Polish cotton textile industry in recent months may indicate that consumers' requirements will necessitate some more general increase in mill activity in the next few months. The depression continues in Japan although a sharp curtailment in cotton textile mill activity in earlier months relieved the market of excess stocks of goods. In Japan, as in Europe, reduced purchasing power is causing consumers to turn to the lower-priced coarse goods and this favors the use of Indian cotton, which is cheaper than American cotton. Trade in the interior of China has been favored by lessening civil strife in recent months but the value of the Chinese dollar has again declined to new low levels.

POTATOES

According to their reports growers in the United States intend to plant 3,583,000 acres to potatoes in 1931, an increase of 6 per cent over the acreage harvested in 1930. These intentions are apparently the result of better than average prices received for both the 1929 and the 1930 crops, and are in line with the usual response of potato growers to prices received. If these intentions are carried out and yields average or above are received, prices are likely to be lower than in 1930.

The acreage of potatoes harvested in 1930 was only a little more than 1 per cent greater than the acreage harvested in 1929. As in 1929, yields were greatly reduced by adverse weather conditions. Only a moderate crop was harvested, the total being estimated at 361,000,000 bushels compared with 359,000,000 in 1929 and 465,000,000 in 1928.

As compared with 1930, prices of early potatoes in 1931 are likely to be relatively less favorable than the prices of late potatoes. In the thirteen early potato-producing states growers report that they intend to plant 463,000 acres, an increase of 11 per cent over the acreage harvested in 1930. The marketing of early potatoes will take place during a period of unusually depressed business conditions. Another factor that will affect California early potato growers is the relatively large stocks of old potatoes in the Pacific Northwest. On January 1, 1931, stocks on hand in Idaho, Washington, and Oregon amounted to 21,866,000 bushels as against 13,819,000 on January 1, 1930.

In the thirty-five late potato states preliminary reports indicate that growers intend to plant 3,120,000 acres as compared with 2,977,000 acres harvested in 1930. The average yield per acre in 1930 in these states was 109.1 bushels as compared with an average of 118.8 bushels during the previous six years. An average yield of 118.8 bushels for 3,120,000 acres would result in a production of 370,656,000 bushels, which is 6 per cent larger than the 1930 late potato crop and approximately the same as the 1927 crop. In 1927 the average price of late potatoes at San Francisco was \$1.41 a hundred, as compared with an average of \$1.87 in 1930. Demand conditions, however, are not expected to be as good during the marketing season of the 1931 late potato crop as they were for the 1927 crop, although somewhat better than for the 1930 crop.

RICE

Present information does not indicate a material change in the price of California rice in 1931-32 from that prevailing in 1930-31. California rice production in 1930 is estimated to be 218,000 tons, which is an increase of 16 per cent over 1929, but just equal to the average of the previous five years. The price of Fancy Japanese rice at San Francisco for the six months August to January, 1930-31, has averaged 17 per cent below the average for the same months during 1929-30.

Exports of rice flour and broken rice have decreased materially since September, 1930, but on the other hand exports of cleaned rice have increased materially since October. The decrease in exports of rice flour and broken rice is due to a slackening of demand in Japan due to an increased production in Japan and Chosen. Canada and Europe are at present increasing their imports of cleaned rice from California.

The estimate of rice production in the southern states for 1930 is 1,020,000 tons, about the same as that of 1929. The average produc-

tion of this area for the four-year period, 1926-1929, was 1,040,000 tons. Stocks of rough rice remaining in farmers' hands on January 1, 1931, were about 81,000 tons larger than a year before. Millstocks (rough and milled), however, were below those of last year. Stocks in both positions indicate that total supplies of rough and milled yet to be marketed are about the same as a year ago. Movement of southern milled rice into consuming channels from August 1 to December 31, 1930, was approximately the same as for the corresponding period last year. The season's probable supply of southern milled rice was 990,000,000 pounds as compared with last year's supply of 993,000,000 pounds. Because of the poor milling quality of some of this year's crop, the percentage of high grades of milled rice may be lower than last year.

Total United States exports for the first five months of the 1930-31 crop year were 8,000,000 pounds below the 107,000,000 pounds exported from August 1 to December 31, 1929. The average quantity exported, during the first five months of the crop year, for the last four years was 85,209,000 pounds. Shipments to Porto Rico during the first five months of the 1930-31 season were larger than last year and about the same as the record shipments of 1928-29. Shipments to Hawaii during that period this year were the largest on record. Exports may continue to run behind those of last year and shipments to insular possessions are likely to ease off slightly during the last half of the crop year, thus leaving a slightly larger supply for domestic consumption than was available last year. Because of the lack of stability in prices of other commodities, domestic buying thus far this season has been strictly of a hand-to-mouth character. In spite of relatively low prices there has not been the usual season's buying for future needs. For the remainder of the crop year, however, it is anticipated that domestic takings will be larger than they were for the corresponding period in 1929-30.

SUGAR BEETS

World sugar production continues high with respect to consumption and prices continue low. In 1930-31 beet sugar production is likely to be larger than the production of last season. The world's cane crop seems likely to be as large as or larger than that of last season, and stocks of sugar are now larger than a year ago. The worldwide depression probably has had a tendency to reduce consumption and prices below what they otherwise would have been during the last season, with consequent accumulation of stocks. Restriction of pro-

duction in foreign countries and an improvement in the purchasing power of consumers are likely to reduce stocks, and it is probable that these factors, together with the higher tariff duties now in force, may result in an upward trend in the prices paid growers for sugar beets during the next few years.

Production of cane sugar in our insular territories of Hawaii, Porto Rico, and the Philippine Islands has been increasing at a rapid rate. Production in the continental United States has also been upward during the last few years. The preliminary estimate of the production of 1,274,000 short tons of beet sugar, calculated on a basis of raw sugar, in continental United States for the 1930-31 season represents a substantial increase as compared with the previous season. The production of cane sugar also has increased at a rapid rate since the adoption of disease-resistant varieties of P.O.J. canes and the consequent improvement of yields in Louisiana, but production is still below the quantity normally produced in that state. The United States, however, is dependent on foreign sugar imports, practically all of which are from Cuba, for approximately 50 per cent of the domestic requirements. The price received by domestic producers, then, is on an approximate basis of the world price plus the duty on Cuban imports.

Beet sugar production in Europe continues to increase. Excluding Russia, European production in the 1930-31 season is expected to be 5 per cent above that of the previous season. Russia reports a large increase in production, preliminary estimates indicating a crop of 1,984,000 short tons, compared with 907,000 in 1929, and 1,413,000 in 1928. The effect of this increase upon the supply or price outside of Russia is problematical. The net exports from Russia in the 1928-29 season amounted to about 97,000 short tons.

The world cane sugar crop also seems likely to be larger than in the past season. Weather conditions have been favorable for a large crop in Cuba. Porto Rico and Hawaii also have prospects for good crops. The Java Sugar Association reports a slight increase in plantings for the next crop in Java. Acreage has been increased in India. Notwithstanding the fact that the world production of sugar during the 1929-30 season just completed was 1.6 per cent below that of the previous season, stocks increased. The visible supply of sugar on September 1, 1930, in thirteen important sugar-producing countries was 1,200,000 short tons above that of the same date of 1929.

Low sugar prices during the last two years may have a tendency to check the expansion of world production, but some time may be required for making material readjustments that will result in lower production. An important recent development has been the negotia-

tion of an agreement between Cuba, Java, and the principal European sugar-producing countries, whereby a definite quantity of stocks of sugar would be segregated and, in conjunction with limitation of exports, gradually marketed over a period of five years in an effort to adjust production to demand.

WHEAT

Another year of low wheat prices is in prospect for 1931. For several years, world production increased faster than consumption and burdensome stocks have accumulated. The world carryover on July 1, 1931, will again be abnormally large. At present there is no indication that there will be any material change in the world acreage of wheat to be harvested in 1931, and thus far weather conditions have been generally favorable for the fall sown crop. It is too early to forecast yields, but with yields approaching average, the new crop plus the very large carryover would again result in burdensome supplies.

World wheat acreage has been expanding since 1924. In that year the total wheat acreage, outside of Russia and China, is estimated to have been 224,000,000 acres; by 1930 it had reached 250,000,000 acres, an increase of about 12 per cent. In addition, Russia's acreage has been increasing rapidly, having risen from 52,700,000 acres in 1924 to 84,100,000 acres in 1930, the present area being nearly 10,000,000 acres in excess of the pre-war average for the years 1909-1913. The increase of nearly 60 per cent, or over 31,000,000 acres since 1924, was over 5,000,000 acres more than the increase in the rest of the world combined during this period.

There is at present no reason to expect that total world production for 1931 will be greatly different from that of 1930. While the increased acreage for the world as a whole, outside of Russia and China, may have been checked, there is no indication of an appreciable decrease. Moreover, there may be some further increase in the Russian acreage for 1931. On an acreage about as large as that of 1930, average yields would result in a world crop for 1931 about equal to that of 1930, and total supplies available for 1931-32 would be about the same as those for 1930-31.

Supplies available for export and carryover as of January 1, 1931, in the four principal exporting countries were from 90,000,000 to 140,000,000 bushels larger than they were a year earlier. In addition, it is likely that there will be material shipments from Russia during the next six months, so that supplies available to fill importers'

requirements will exceed those of the corresponding period last year by about 150,000,000 bushels or more. Altogether, indications are that the world carryover, outside of Russia and China, as of July 1, 1931, will again be abnormally large and perhaps not materially different from that of July 1, 1930.

On the demand side, some improvement may be expected through improving world business conditions and increased use of white bread; but this will probably be counterbalanced, in part at least, by a decrease in the amount of wheat used for feed. It is not to be expected that the United States will have another short corn crop in 1931, with its resulting heavy feeding of wheat. Consequently, no marked increase in wheat consumption is in prospect for next season. Under the present circumstances no prediction as to the precise level of prices during the coming year can be safely ventured, but present indications are that it will again be low.

World wheat prices are now at extremely low levels. It is doubtful if wheat has ever been so cheap in terms of commodities in general as it has been in recent months. While it cannot be confidently predicted that the bottom has been reached, it seems improbable that world wheat prices can go much lower for prices at Liverpool, Winnipeg, Buenos Aires, and other important markets are now so low as to return to growers in many wheat-producing regions little more than threshing and shipping costs.

Although the North Pacific Coast must normally depend upon export markets as an outlet for a considerable proportion of the production, prices of wheat at Portland since November have been maintained well above export parity, largely by operations of the Grain Stabilization Corporation. As a result, exports of wheat and flour are being restricted, and it is probable that the carryover into the 1931 crop marketing season will be abnormally heavy. Unless yields in 1931 should be exceptionally low the new crop added to the heavy carryover will result in a large exportable surplus next summer. Since prices of wheat at Portland now average about 35 cents a hundred above an export parity, to place them upon an export basis means that world wheat prices will have to rise about 35 cents a hundred if our prices are not to fall below their present levels. The San Francisco price is remaining in line with Portland and about 20 cents a hundred above as in the past. It will undoubtedly continue to do so.

Looking further ahead, substantial adjustments may be expected through forced contraction of high-cost acreage, through checking the expansion in low-cost acreage, through increased purchasing power,

and through modification of European import and milling restrictions which are now tending to reduce consumption. A better balance between production and consumption is likely to be reached eventually at price levels which will average above those now prevailing in world markets, but lower than have prevailed in most of the past ten years.

BARLEY

The California barley industry is confronted with the prospect of an unusually large carryover of old crop at the 1931 harvest time. The 1930 crop of 850,000 tons was the largest crop in eight years, and barley exports from San Francisco for the first six months of the current year were 15 per cent below normal. In view of these facts, carryover is likely to be at least double that of the 58,000 ton average for the years 1921-1929.

California export barley receives serious competition from the Danube region in Europe. Yields there were high in 1930. Unless yields of barley in the Danube region are again high in 1931, the export demand for California barley in 1931-32 is likely to be better than in 1930-31. Also some improvement in business conditions in Europe is expected to develop during the latter part of the year.

With decreased numbers of hogs and dairy cows in the state as compared with a year ago, and a probable decrease in the numbers of poultry during 1931, increased requirements of barley as a feed in this state cannot be expected until prices of dairy and poultry products are materially more favorable than they are at present.

In the United States as a whole, however, there may be increased demand for feed barley from July to November, 1931. Until the 1931 corn crop is harvested, the use of barley will be unusually large, but after that time, demand will probably be less than during the 1930-31 season.

The rapid increase in barley acreage in the United States during recent years has resulted from increased use of this grain as a substitute for oats and corn in hog and cattle rations and from the increased need for feed for the increased numbers of livestock raised on farms in the Great Plains states where barley is a more certain crop than corn.

The United States 1930 barley crop of 325,893,000 bushels was the second largest crop ever harvested. While the acreage was smaller than in 1929, the yield of 26.2 bushels was 1.2 bushels above average. The acreage of this crop is relatively unimportant in all of the area seri-

ously affected by the 1930 drought, with the exception of Montana. Substitution of barley for corn as a livestock feed has and will continue to take place in the drought area on an inshipment basis. The marketing of the 1930 crop is, therefore, in direct competition with corn. Total supplies including the farm and market stocks on August 1 for the 1930-31 feeding season were 345,000,000 bushels as compared with 329,000,000 bushels for the 1929-30 feeding season. Since exports to January 1 this season totaled only 6,000,000 bushels as compared with 18,000,000 bushels during the corresponding period in 1929-30, about 28,000,000 bushels more were available for feeding in 1930-31. While no data on total stocks on January 1 are available, some increased feeding has taken place and total stocks on January 1 are probably not much different than a year earlier. Somewhat heavier feeding than in 1929-30 will be necessitated for the remainder of the season as a result of the fact that the 1930 corn crop was 650,000,000 bushels below normal. Consequently, the United States carryover on August 1, 1931, will probably be no greater than on the same date in the preceding two years.

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